Syllabus

Instructor: Dr. Justin Post  
Office: SAS Hall 5272  
Phone: (919) 515-0637  
Email: justin_post@ncsu.edu

Office hours: W 7:00-9:00pm (Eastern - Virtual)

TA: Yue Yang  
Office hours: TBD

More office hours can be scheduled if there is a demand! The general discussion board and/or email are good options as well.

Course Goal: First of a two-semester sequence in probability and statistics taught at a calculus-based level. Probability: discrete and continuous distributions, expected values, transformations of random variables, sampling distributions.

Students should gain an understanding of probability and random variables in order to have the foundation to conduct statistical inference in ST 502 and understand methods used in other courses.

Prerequisites: MA 242 (Calc III) is required.

Required Texts:


This course will cover the first 6 chapters of the book as well as a few topics not included in the book. The book will also be used for ST 502. Do not purchase the soft cover book.
Communication: Students are expected to check their NCSU email regularly to receive course announcements. Students who do not use their NCSU email should arrange to have this email forwarded to an account they do use. Due to university regulations the instructor can send course announcements only to NCSU email addresses.

Course Content: Students in this course do not attend a typical class period. Instead students will watch videos, complete and upload homework assignments/projects, and participate in discussion board posts. Students should set aside sufficient time in their schedules to complete these materials. Note that material may be due during the week.

Course Assistance: To obtain course help there are a number of options:

- General Discussion Board - This should be used for any question you feel comfortable asking and having others view. The TA, other students, and I will answer questions on this board. This will be the fastest way to receive a response!
- E-mail - If there is a question that you don’t feel comfortable asking to the whole class you can use e-mail. The TA and I will be checking daily (during the regular work week).
- Blackboard Collaborate Office Hour Sessions - These sessions can be used to share screens and have multiple users. You can do chat, voice, and video.

Calculator: No calculator is needed nor allowed for exams. R (see below) is a great calculator for homework assignments!

Software: Students in this course will use the R statistical software. This software is open source, works on all major platforms, and is free to anyone. It is widely used in statistics and is especially great for visualizations and custom analyses. It is recommended that you also download R studio to use as an Integrated Development Environment (IDE).

Grades: It is the student’s responsibility to be aware of their grades in the course and the appropriate level of work required. Your final grade in this course will depend on the following:

<table>
<thead>
<tr>
<th>Item</th>
<th>Portion of Grade</th>
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<tbody>
<tr>
<td>2 Midterm Exams</td>
<td>50% of grade (25% each)</td>
</tr>
<tr>
<td>Homework</td>
<td>10% of grade (Lowest Score Dropped)</td>
</tr>
<tr>
<td>Comprehensive Final Exam</td>
<td>30% of grade</td>
</tr>
<tr>
<td>R Project</td>
<td>5% of grade</td>
</tr>
<tr>
<td>Discussion Board Posts</td>
<td>5% of grade</td>
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The course uses the standard NCSU grading scale:
<table>
<thead>
<tr>
<th>Grade</th>
<th>F</th>
<th>D-</th>
<th>D</th>
<th>D+</th>
<th>C-</th>
<th>C</th>
<th>C+</th>
<th>B-</th>
<th>B</th>
<th>B+</th>
<th>A-</th>
<th>A</th>
<th>A+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>&lt;60%</td>
<td>60%-63%</td>
<td>63%-67%</td>
<td>67%-70%</td>
<td>70%-73%</td>
<td>73%-77%</td>
<td>77%-80%</td>
<td>80%-83%</td>
<td>83%-87%</td>
<td>87%-90%</td>
<td>90%-93%</td>
<td>93%-97%</td>
<td>&gt;97%</td>
</tr>
</tbody>
</table>

Incomplete (IN) grades are given only as specified in university regulations. Students who wish to audit the course with satisfactory status must register officially for the course and will be required to obtain an 80% or greater in total on the homework assignments to receive credit.

**Homework:** There will be 10 homework assignments during the semester with the lowest assignment being dropped. Many of the assignments will include a programming portion. As the lowest score is dropped, **no late assignments are accepted.**

**Scanner:** Students will need to submit their "written" homework in pdf or word format. It is acceptable to write the homework by hand and scan it to a pdf. Therefore, you will need to have access to a scanner or use a phone app (easiest thing to do). We are not allowed to suggest an app due to liability purposes, but a quick search of “picture to pdf app” will give many good results. Alternatively, students may also type their homework assignment.

**R Project:** Toward the end of the semester, there will be a larger R project.

**Discussion Board Postings:** Student in this course will be broken into small groups. Mostly every week these groups will answer questions and discuss course content using the online discussion board. These discussion questions will be keyed to the specific weeks material and will have firm due dates. Your fellow group members will be counting on your contributions to be submitted by the due date. Discussion postings will be graded based on quality of responses. Students are expected to treat each other with respect on the boards.

**Exams:** All exams are closed book and closed notes. However, students will be provided with a formula sheet by the instructor for each exam so that memorization is not required. The exams are inherently cumulative with the final being explicitly cumulative. No calculators or other electronic devices may be used. Students who are unable to attend an exam for a legitimate unavoidable reason may be given the opportunity for a make-up exam or be given a reweighting of their final exam. The midterm exams are limited to 2 hours. The final exam is limited to 3 hours.

**Exam proctoring:** Students must arrange to take their exams during the assigned testing window. Exceptions may be made but will be at the discretion of the instructor. Students may take exams in their choice of two possible methods.

- Through the Distance Education Proctoring Offices. Students who are in Wake and adjoining counties may arrange to take their exams at the DE Proctoring offices on a walk in basis. For more information see [https://online-distance.ncsu.edu/current_students/testing-services/testing-services-on-campus/](https://online-distance.ncsu.edu/current_students/testing-services/testing-services-on-campus/)
- Off campus proctoring. Students who are not in Wake County or the adjoining counties or have extenuating circumstances may take exams through an approved proctor. All remote proctoring should be arranged through the Distance Education Proctoring Office For more information on arranging proctors see [https://online-distance.ncsu.edu/current_students/testing-services/testing-services-remote/](https://online-distance.ncsu.edu/current_students/testing-services/testing-services-remote/)
**Students with disabilities:** Reasonable accommodations will be made for students with verifiable disabilities. Any student who feels they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss your specific needs. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. [http://www.ncsu.edu/provost/offices/affirm_action/dss/](http://www.ncsu.edu/provost/offices/affirm_action/dss/). For more information on NC State’s policy on working with students with disabilities, please see [http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.1.php](http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.1.php)

**Academic Misconduct:** Cheating, plagiarism, and other forms of academic dishonesty will not be tolerated. To create a fair and equitable environment the instructor aggressively enforces the universities policies on academic misconduct. All exams are to be completed individually. Although working together on written assignments to overcome obstacles is encouraged, each student must compose and write their own answers, analysis, and/or reports. All cases of academic misconduct will be handled as set out in university policies. For additional information see: [http://studentconduct.ncsu.edu/student-conduct-policies](http://studentconduct.ncsu.edu/student-conduct-policies)

**Course Outline:**
- Basic Probability and Counting
- Random Variables and their properties
- Common PMFs and PDFs
- Transformations
- Joint and Conditional Distributions
- Covariance and Correlation
- Delta Method and Limit Theorems
- Point Estimation

**Calendar of Events:**
- 8/22 – First day of classes
- 9/3 – Labor Day
- 10/11-10/12 (Thursday/Friday) – Exam 1 Window
- 10/19 – Drop/Revision Date
- 11/14-11/15 (Wednesday/Thursday) – Exam 2 Window
- 11/21-11/23 – Thanksgiving Break
- 12/11-12/12 (Tuesday/Wednesday) – Final Exam Window

Last modified: Monday, August 20, 2018, 12:33 PM