

**Syllabus – STOR 555**  
**Fall 2021 (August 18 – December 1)**  
**Section 001, TuTh 2:00 – 3:15pm**  
**Hanes 120**

**Instructor:** Jan Hannig

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**Office Hours:** (on zoom)

**Course home page on**

MW 11:30AM – 1:00 PM

<https://sakai.unc.edu/portal/site/stor555-fa21>

and by appointment

**Zoom link for Office hours:**

**Zoom link for lectures (if needed)**

<https://unc.zoom.us/j/95720098209?pwd=aW5zMDVQV0tGSFJlRWl6cTZJdmJBZz09>

<https://unc.zoom.us/j/94731745146?pwd=T01zZlNGc1Axa mRrME1NZ2dURmFPZz09>

Meeting ID: 957 2009 8209

ID: 947 3174 5146

Passcode: HanesHall

Pass: HanesHall

**Teaching Assistant:** Bongsoo Yi

**E-mail:** [bongsoo@unc.edu](mailto:bongsoo@unc.edu)

**TA zoom:**

**TA Office Hour:** (on zoom)

<https://zoom.us/j/99045241057?pwd=dm9EOXd LOEp6RGpmY2xoOTFKYVFjQT09>

M 9:15 – 10:15 AM

Meeting ID: 990 4524 1057

Passcode: nhgS3a

**Target Audience:** Undergraduate students in STAN major, and any other and is recommended for students throughout the natural and social sciences who are interested in theoretical statistics.

**Prerequisites:** STOR 435 or equivalent.

**Required Text:**

- G.A. Young and R.L. Smith, Essentials of statistical inference, Cambridge University Press, 2005, ISBN 0-521-83917-8

**Optional Text:**

- Hogg, R. V., McKean, J., & Craig, A. T. (2005). *Introduction to mathematical statistics*. Pearson Education. ISBN 0321795431

**Course Format:** Traditional in-person lecture

**Course Outline:** This course presents introduction to mathematical statistics. Functions of random samples and their probability distributions, introductory theory of point and interval estimation and hypothesis testing, elementary decision theory.

**Assessment:** Your grade will be based midterm exams (30% of the grade), a final exam (40% of the grade), and homework sets (30% of the grade).

**Important dates:**

- Final Exam: December 7, 12noon-3pm.
- Midterm exam: Tuesday, October 5
- Homework: Homework sets will be usually assigned on Tuesdays and due in one week on Gradescope (accessible via Sakai). Late/missed homework will receive a grade of zero

**Tentative Course Schedule**

8/19/21	Introduction	
8/24/21	Decision theory 1	Homework 1
8/26/21	Decision theory 2	
8/31/21	Decision theory 3	Homework 2
9/2/21	Bayesian methods 1	
9/7/21	Bayesian methods 2	Homework 3
9/9/21	Bayesian methods 3	
9/14/21	Bayesian methods 4	Homework 4
9/16/21	Hypothesis testing 1	
9/21/21	Hypothesis testing 2	Homework 5
9/23/21	Hypothesis testing 3	
9/28/21	Exponential family	
9/30/21	Point estimation and sufficiency 1	
10/5/21	<b>Exam</b>	
10/7/21	Point estimation and sufficiency 2	Homework 6
10/12/21	<b>NO CLASS – University Day</b>	
10/14/21	Advanced hypothesis testing 1	
10/19/21	Advanced hypothesis testing 2	
10/21/21	<b>NO CLASS – Fall break</b>	
10/26/21	Confidence sets	Homework 7
10/28/21	Maximum likelihood estimation 1	
11/2/21	Maximum likelihood estimation 2	Homework 8
11/4/21	Advanced asymptotics 1	
11/9/21	Advanced asymptotics 2	Homework 9
11/11/21	Advanced asymptotics 3	
11/16/21	Predictive Inference 1	Homework 10
11/18/21	Predictive Inference 2	
11/23/21	Bootstrap	
11/25/21	<b>NO CLASS – Thanksgiving</b>	
11/30/21	Review	

**Final Exam:** Any student needing to be excused from the final exam due to the 3 Final Exams in 24 hour period rule must bring a written Dean's Excuse and discuss the situation with the instructor at least two weeks prior the end of the semester.

**Homework:** You are allowed, even encouraged, to work with other students on the homework problems; however, *verbatim copying of homework is absolutely forbidden* and constitutes a violation of the Honor Code. Therefore, each student must ultimately produce his or her own homework to be turned in and graded. You are also encouraged to ask me for help on homework problems after attempting to solve the problems on your own. *No late homework will be accepted without excuse!*

**Face Masks** This semester, while we are in the midst of a global pandemic, all enrolled students are required to wear a mask covering your mouth and nose at all times in our classroom. This requirement is to protect our educational community — your classmates and me – as we learn together. If you choose not to wear a mask, or wear it improperly, I will ask you to leave immediately, and I will submit a report to the [Office of Student Conduct](#). At that point you will be disenrolled from this course for the protection of our educational community. Students who have an authorized accommodation from Accessibility Resources and Service have an exception. For additional information, see [Carolina Together](#).

**Delivery Method** This course is classified as “in person”. While I expect you to come in class, I am also planning to accommodate students who are unable to do so by recording and streaming the lectures. The office hours will be held virtually on zoom.

**Etiquette for Zoom** These are my five expectations of you on Zoom:

- Have your camera turned on.
- Mute your microphone unless answering or asking a question.
- Communicate by unmuting yourself or using the chat feature.
- Be mindful of background noise when not muted.
- Limit your distractions and avoid multi-tasking.

**UNC Attendance Policy** No right or privilege exists that permits a student to be absent from any class meetings, even online classes, except for these university approved absences: authorized university activities, and disability/religious observance/pregnancy, as required by law and approved by Accessibility Resources and Service and/or the Equal Opportunity and Compliance Office (EOC). Significant health condition and/or

personal/family emergency as approved by the Office of the Dean of Students, Gender Violence Service Coordinators, and/or the Equal Opportunity and Compliance Office (EOC).

**Diversity Statement** I value the perspectives of individuals from all backgrounds reflecting the diversity of our students. I broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. I strive to make this classroom an inclusive space for all students. Please let me know if there is anything I can do to improve, I appreciate suggestions.

**Accessibility Resources** UNC-Chapel Hill facilitates the implementation of reasonable accommodations for students with learning disabilities, physical disabilities, mental health struggles, chronic medical conditions, temporary disability, or pregnancy complications, all of which can impair student success. See the ARS website for contact and registration information: <https://ars.unc.edu/about-ars/contact-us>

**Counseling and Psychological Services** CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: <https://caps.unc.edu/> or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

**Title IX** Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Adrienne Allison - [Adrienne.allison@unc.edu](mailto:Adrienne.allison@unc.edu)), Report and Response Coordinators in the Equal Opportunity and Compliance Office ([reportandresponse@unc.edu](mailto:reportandresponse@unc.edu)), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators ([gvsc@unc.edu](mailto:gvsc@unc.edu); confidential) to discuss your specific needs. Additional resources are available at <https://safe.unc.edu>

**Honor Code Statement** Students are bound by UNC's honor code (<https://studentconduct.unc.edu/information/policies>) in taking exams and in written work, and the submission of said work signifies understanding and acceptance of those requirements. Plagiarism will not be tolerated. Please consult with me if you have any questions about the honor code.

**Note:** This course will participate in the Carolina Course Evaluation. Each student should feel comfortable approaching the instructor with any concerns he/she has with the course. If there is a concern which cannot be resolved with the instructor or with which the student does not feel comfortable approaching the instructor, you may confidentially contact the Director of Undergraduate Studies at the STOR Department: Prof. Zia, 356 Hanes Hall, (919) 843-6022, [ziya@email.unc.edu](mailto:ziya@email.unc.edu) . For all questions on registration, contact Christine Keat, 321 Hanes Hall, (919) 962-2307, [keat@unc.edu](mailto:keat@unc.edu) .

**Legal** The instructor reserves the right to make any changes he considers academically advisable. It is your responsibility to attend classes and keep track of the proceedings.