Syllabus and Basic Information for STA4321/5325

Instructor: Rohit Patra

1 Basic Information

Lectures Lectures covering the weekly material will be pre-recorded and posted on the course website at the beginning of each week.

Objective The sequence of courses STA 4321-4322 (rep. 5325-5328) provides a formal and systematic introduction to mathematical statistics for students who have passed three semesters of standard undergraduate level calculus. STA 4321/5325 introduces the background in probability that is necessary to understand the classical statistical theory introduced in STA 4322/5328. Major topics include the basic formal elements of probability, discrete and continuous random variables, multivariate distributions, distributions of functions of random variables, and fundamental limit theorems.

Website We will use Canvas.

Course Notes Lecture notes will be provided in Canvas but are only meant as a guide/review and *are not meant replace recorded lectures.*

Instructor Rohit Patra, 221 Griffin-Floyd Hall
Email: rohitpatra@ufl.edu
Office Hours: Wednesday: 4:00–6:00pm.
Zoom link for office hours: https://ufl.zoom.us/j/892339318

TA Nikolina Dabovic,
Email: nikolina.dabovic@ufl.edu
Office Hours:

1. Monday 1:30–2:30pm
2. Wednesday 1:30–2:30pm
3. Friday 3:00–4:00pm

Zoom link for office hours: https://ufl.zoom.us/j/892339318
Feel free to email me or the TA with questions if you cannot make the regular office hours.

Book *Mathematical Statistics with Applications*, 7th Edition by Dennis Wackerly, William Mendenhall, and Richard L. Scheaffer **Chapters 1–6**

Grades: The final grade is based on the following composite score:

- Homework — 25%
- Exam 1, October 1, (Day long exam) — 20%
- Exam 2, November 2, (Day long exam) — 25%
- Exam 3 , December 8, (Day long exam) —30%

Letter Grade: Grades will be assigned as follows: 90-100, A; 87-89.9, A-; 84-86.9, B+; 80-83.9, B; 77- 79.9, B-; 74-76.9, C+; 70-73.9, C; 67-69.9, C-; 64-66.9, D+; 60-63.9, D; 55-59.9, D-; 0- 55, F

Homework: There will be a homework assignment every week (except on the exam weeks) and it will be due via Canvas submission at the end of that week (Sunday 11:59pm). The homeworks can be found canvas tab for files (subfolder Homework). The answers will have partial credit and each homework is worth the same number of points. Even though, the homeworks will focus on the recent topics covered in the class, they are cumulative. No makeup homeworks will be offered. However, homeworks with the lowest two grades will be dropped. If you have tech troubles, please contact UF help desk or call them at 352-392-4357 (they are open 24x7).

Drop/Withdraw: For late course drops and course withdrawals please visit https://catalog.ufl.edu/UGRD/academic-regulations/dropping-courses-withdrawals/

Incomplete: An incomplete grade may be assigned at the discretion of the instructor as an interim grade for a course in which the student has completed a major portion of the course with a passing grade, been unable to

complete course requirements before the end of the term because of extenuating circumstances, and obtained agreement from the instructor and arranged for resolution of the incomplete grade in the next term. Instructors are not required to assign incomplete grades. For complete details please visit CLAS incomplete grade policies and forms https://www.advising.ufl.edu/academicinfo/clas-policiesprocedures/incomplete-grades/.

Integrity Please familiarize yourself with the Student Honor Code and Academic Honesty Guidelines outlined in your University of Florida Student Guide and at https://sccr.dso.ufl.edu/process/student-conduct-code/.

Accommodations To request classroom accommodation, please be certain that you have made all necessary arrangements with the Dean of Students Office, and obtain from them documentation to submit to the instructor at the time of your request. A request must be made to the instructor at least 10 days in advance of the date for which the accommodation is requested.

Exams: There will be three take home exams. You will have a 24 hours (From 12:01 am to 11:59) to do the exams. Its open book but you are **not** allowed to discuss the exam with any other person.

Grades: After each exam I will send you an email with your current grade. The grade will take into account all the exams, quizzes, and homeworks up to that point in time. It should be only taken as a rough guide on your current standing in the class.

Feedback: I have created an assignment on Canvas. There you can submit anonymous feedback. You should be able to submit as many feedbacks as you want throughout the semester.

Evaluations Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at

https://evaluations.ufl.edu/results/.

Counseling Center: Contact information for the Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Additional resources: Any additional resources including academic support or information technology can be found at https://www.ufl.edu/about/offices-services/

Canvas privacy: Canvas accessibility and privacy statements can be found in the following link. https://docs.google.com/document/d/1EQ3PlY5PwyhLEeVCXr2ZR8s27V9Jl8e2-z copy

2 Approximate Lecture Schedule

Table 1: This is a very tentative schedule. I will regularly update this PDF.

Week	**Class Date**	**Topic**	**Text book**
Week 1	4, 6 Jan	Probability and interpretation	1–2.2
Week 2	9, 11, 13 Jan	Set theory and Axioms of probability	2.3–2.5
Week 3	17, 20 Jan	Method of Counting	2.4–2.6
Week 4	23*, 25*, 27* Jan	Method of Counting	2.6
Week 5	30 Jan, 1, 3 Feb	Independence, Conditional Probability	2.7-2.8
Week 6	6, 8, †10* Feb	Bayes rule and Total law of probability	2.9–2.11
Week 7	13, 15, 17 Feb	Random variable (rv) and PMF/CDF	3.1–3.3
Week 8	20, 22, 24 Feb	Expectations, MGF, and Binomial rv	3.4, 3.5, 3.7
Week 9	27 Feb, 1, 3 Mar	Geometric, Hypergeometric and Poisson rv	3.7–3.8
Week 10	—	Spring Break	
Week 11	13, 15, 17 Mar	Continuous random variables, Uniform rv	4.1–4.4
Week 12	†20, 22, 24 Mar	Normal, Exponential, and Gamma distributions and Tchebyscheff's theorem	4.5, 4.6, 4.11
Week 13	27, 29, 31 Mar	Bivariate, marginal, and conditional pdf/pmf	5.1–5.6
Week 14	3, 5, 7 Apr	Covariance and Multinomial rv	5.7–5.9
Week 15	10, 12, 14 Apr	Conditional Expectation and Method of CDF	5.11–6.3
Week 16	17, 19 Apr	Method of transformation and Order statistics	6.4–6.5

† marks the midterm dates.
* marks the days the TA will teach.