

STA 4321/5325

Fall 2021

Introduction to Probability / Fundamentals of Probability

Course Prerequisites: MAC 2313/3474

MWF: 8.30-9.20am @ Anderson Hall 0134

Instructor and TA

Instructor: Georgia Papadogeorgou

Contact: gpapadogeorgou@ufl.edu

Office hours: TBD

TA: Swarnali Raha

Contact: swarnali.raha@ufl.edu

Office hours: TBD

Class format and materials

- **Lectures**

Lectures will be held using HyFlex technology and they will be recorded. This means that students can (a) attend in person, (b) attend via zoom synchronously, or (c) watch the recorded lectures at their own time.

Zoom link for lectures: <https://ufl.zoom.us/j/92478228923>

Privacy statement regarding online lectures: Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate verbally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

- **Slides**

Notes for the week will be posted at the beginning of each week on the course website. These should contain *nearly* all of the material, but they will include unsolved examples and questions that I will solve during the lecture.

- **Office hours**

Zoom link for office hours: <https://ufl.zoom.us/j/91033721714>

Office hours will **not** be held during university holidays.

Office hours will not be held during the first week of the semester.

- **Required Textbook**

Seventh edition of Mathematical Statistics with Applications by Wackerly, Mendenhall, and Scheaffer. (ISBN: 9780495110811)

Student responsibilities

- **Homework**

There will be **3 homework assignments** during the semester.

You are allowed to collaborate on homework. However, your final homework submission has to reflect your own work, and identical submissions will not be tolerated. Homework is your best preparation for the exam, so I strongly encourage you to try all problems on your own before consulting with your fellow classmates.

Homework deadlines are strict. For extensions, you need to email me no later than 24 hours before the due time. I will only consider requests for which there is a reasonable reason why the assignment cannot be completed at the allotted time. Students that do not return their homework by the due time without having received an **approved** extension will receive a grade of zero for the given assignment.

- **Exams**

There will be three exams. The modality of the exam will be decided in the beginning of the semester.

Students **are not allowed** to collaborate during exams, and are not allowed to use textbooks, video recordings and slides from the course, or other online resources for completing the exam.

In case of conflict or illness, if a student is unable to take an exam at the scheduled time, they must get in touch with the instructor at least 48 hours **prior** to the exam time for any arrangements to be made for a makeup. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite under such extenuating circumstances. Academic dishonesty on any exam will result in a *minimum* penalty of a grade of zero on that exam.

Important Dates

These dates are **subject to change** during the semester. Any changes will be announced during the lecture and on the course website.

Homework #1. Due on Friday September 10th at 11am

Exam #1 Monday, September 20th

Homework #2. Due on Friday October 15th at 11am

Exam #2 Monday, October 25th

Homework #3. Due on Tuesday November 23rd at 11am

Exam #3 Monday, December 6th

Grading

Exams 1, 2 and 3 25% each

Homework 25%

These are tentative and subject to change, however, they will only change in the direction that is good for you. There is a good chance that the course will be curved and the requirements for getting any particular grade level

will be lower than what you see here. If your grade falls above a given threshold below, then you are guaranteed to get at least that grade for the course.

B+	84 to < 87	A	90 to 100	A-	87 to < 90
C+	74 to < 77	B	80 to < 84	B-	77 to < 80
D+	64 to < 67	C	70 to < 74	C-	67 to < 70
		D	60 to < 64	D-	55 to < 60
		E	< 55		

The numeric scores will be rounded to the nearest tenth.

Grades will be changed only when an error has been made; negotiation is not appropriate.

I will not discuss individual grades during the semester.

Course Description

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.

Tentative Course Outline

Week	Content
1	Set theory, permutations, counting rules
2	Counting rules, conditional probability, Bayes rule, independence
3	Random variables, Probability mass functions, Practice exam
4	Distribution functions, Expected value, variance
5	EXAM 1, Discrete probability distributions
6	Continuous probability distributions, probability density function
7	Properties of continuous probability distributions
8	Examples of continuous distributions, practice exam
9	more continuous distributions
10	EXAM 2, Moment generating functions, joint probability distributions
11	Joint distribution functions, probabilities with two random variables
12	Covariance, conditional expectation
13	Sums of random variables, thanksgiving break
14	Functions of random variables, transformations, practice exam
15	EXAM 3

In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- **If you are not vaccinated, get vaccinated.** Vaccines are readily available at **no cost** and have been demonstrated to be **safe and effective** against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment: <https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/> (Links to an external site.). Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.
- **You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.** Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
 - Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
 - Hand sanitizing stations will be located in every classroom.
- **If you sick, stay home and self-quarantine.** Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website \(Links to an external site.\)](#) for more information.
 - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.
 - If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- Continue to regularly visit [coronavirus.UFHealth.org \(Links to an external site.\)](https://coronavirus.UFHealth.org) and [coronavirus.ufl.edu \(Links to an external site.\)](https://coronavirus.ufl.edu) for up-to-date information about COVID-19 and vaccination.

UF and CLAS Policies

Dropping, Withdrawing and Incomplete

Make up Policy

Requirements for make-up exams, assignments, and other work in this course as well as policies regarding absences, religious holidays, illness and student athletes are consistent with [UF Attendance Policies. \(Links to an external site.\)](#)

Dropping and Withdraw

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

Incomplete

Incompletes are only assigned when extraordinary circumstances (such as an accident, or extended hospitalization), arising after the date for dropping the course, prevent the student from completing the course requirements. Having a failing grade in the course is not a valid reason for requesting an Incomplete. Information on **Medical Withdrawal** can be found at <https://umatter.ufl.edu/>

Accommodating Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://disability.ufl.edu/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which will be sent to the instructor. Students with disabilities should follow this procedure as early as possible in the semester, and need to do this every semester. Accommodations will not be made retroactively, but only forward from the day that the letter was received. Special circumstances should be discussed with the instructor.

Academic Misconduct

University's Honesty Policy: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

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/>.

Additional resources

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