

STA 4321/5325

Fall 2020

Introduction to Probability / Fundamentals of Probability

Course Prerequisites: MAC 2313/3474

Instructor and TA

Instructor: Georgia Papadogeorgou

Contact: gpapadogeorgou@ufl.edu

Office hours: Wednesdays 10:40am - 12:35pm, Fridays 8:30 - 10:25am

TA: Hongqiang Sun

Contact: sunh1@ufl.edu

Office hours: Tuesdays 1 - 1:50pm, Thursdays 1 - 2:45pm

Class format and materials

- **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.

- **Recorded lectures**

In order to ensure that lectures are available to watch at your individual pace, video lectures will be recorded and posted on Canvas at the beginning of the week. Each lecture will be approximately 45 mins. Students are **strongly encouraged** to pause the video recordings when prompted and try the problems in the slides on their own before watching the solution.

There will be 2-3 lectures per week depending on the corresponding week's holiday schedule.

- **Office hours**

We will hold office hours during four days of every week* during the following times:

Tuesday 1 - 1:50pm (Sun)

Meeting ID: 919 1765 3290

Wednesday 10:40am - 12:35pm (Papadogeorgou)

Meeting ID: 968 9340 9100

Thursday 1 - 2:45pm (Sun)

Meeting ID: 968 1116 1672

Friday 8:30 - 10:25am (Papadogeorgou)

Meeting ID: 995 1021 2301

Passcode for Zoom: 113359

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

Considering the asynchronous format of teaching, students are **strongly encouraged** to attend office hours to (1) introduce themselves, (2) ask questions, or (3) anything else.

- **Discussion board**

Students are welcome to use the Discussions tab on Canvas to discuss class-related topics. An example is [this one](#). This space on Canvas is meant to be used for student-to-student communication, but the instructor and TA will moderate the discussions.

- **Required Textbook**

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

Student responsibilities

- **Homework**

Homework will be **weekly** to ensure that students remain on top of the week's posted materials. It will be assigned by midnight on Friday, and it will be due the following Friday at 5pm. Homework will be posted and it is expected to be returned via the Canvas system. Each homework will include 1-3 questions, depending on difficulty.

You are allowed to collaborate on homework assignments and are encouraged to use the Discussions board. 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.

- **Exams**

There will be three take-home exams given in class. Students will be given 1 or 2 days to complete the exam. I will inform you of the time window allotted the week prior to the exam.

Extensions will not be granted except for unique circumstances. Students **are not allowed** to collaborate during exams. Even though you are allowed to use textbooks, video recordings and slides from the course, you **are not allowed** to use interactive or otherwise online resources for completing your exam.

Practice questions will be posted on the website in advance, and some lecture time will be dedicated for solving practice questions.

Exam Dates

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

Exam #1 Assigned on Monday, September 21st

Exam #2 Assigned on Tuesday, October 27th

Exam #3 Assigned on Monday, December 7th

Grading

Exams 1, 2 and 3 25% each

Homework 25%

The following letter assignments are **subject to change**. However, they will only change in the direction that is good for you! If your grade falls above a given threshold below, then you are **guaranteed** to get at least that grade.

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

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	Dates	Content
1	Aug 31 - Sep 4	Set theory, permutations, counting rules
2	Sep 7 - 11	Counting rules, conditional probability, Bayes rule, independence
3	Sep 14 - 18	Random variables, Probability mass functions, Practice exam
4	Sep 21 - 25	EXAM 1, Distribution functions, Expected value, variance
5	Sep 28 - Oct 2	Discrete probability distributions
6	Oct 5 - 9	Continuous probability distributions, probability density function
7	Oct 12 - 16	Properties of continuous probability distributions
8	Oct 19 - 23	Examples of continuous distributions, practice exam
9	Oct 26 - 30	EXAM 2, more continuous distributions
10	Nov 2 - 6	Moment generating functions, joint probability distributions

11	Nov 9 - 13	Joint distribution functions, probabilities with two random variables
12	Nov 16 - 20	Covariance, conditional expectation
13	Nov 23 - 27	Sums of random variables, thanksgiving break
14	Nov 30 - Dec 4	Functions of random variables, transformations, practice exam
15	Dec 7 - 9	Exam 3

Additional Information

- **Accommodating Students with Disabilities**

Students requesting accommodation for disabilities must first register with the Dean of Students Office. The Dean of Students will provide documentation to the students who must then provide this documentation to the instructor when requesting information. You must submit this documentation prior to submitting any assignments for which you are requesting accommodation.

- **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](#).

- **Dropping and 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](#).

- **Academic Misconduct**

Students are held accountable to the [UF Honor Code](#).

- **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/>