

STA 4321 Sec 19121  
STA 5325 Sec 19147

## Introduction to Probability Fundamentals of Probability

Fall, 2020

### Course Information

**Time:** MWF 3:00 – 3:50 p.m. (Period 8)

**Location:** Virtual

**Instructor:** Dr. Sayar Karmakar

**Office:** 101B Griffin Floyd Hall

**E-mail:** sayarkarmakar@ufl.edu

**Office Hours:** (might change occasionally) Mon 3.50 – 5.00 pm, Wed 3.50 – 5.00 pm or by appointment

**Teaching Assistant:** Partha Sarkar

**Office:** Virtual

**E-mail:** sarkarpartha@ufl.edu@ufl.edu

**Office Hours:** Tue 4.00 – 5.30 pm, Thu 4.00 – 5.30 pm(subject to change)

**Text:** Wackerly, Mendenhall, and Scheaffer, *Mathematical Statistics with Applications* (7th ed), Duxbury Press (Thomson Brooks/Cole Publishing), 2008.

### 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.

### Prerequisite

MAC 2313 (or equivalent third semester calculus course). A well-prepared student should have taken an introductory statistics course, such as STA 2023 or STA 3032.

### Course Contents

- Basic formal elements of probability
- Discrete and continuous random variables
- Multivariate distributions
- Distributions of functions of random variables
- Fundamental limit theorems

## Text

- Wackerly, Mendenhall, and Scheaffer, *Mathematical Statistics with Applications* (7th ed), Duxbury Press (Thomson Brooks/Cole Publishing), 2008.

Lectures will cover (roughly) chapters 1-7. Note that the exams will be based on material actually taught in lectures. The textbook is helpful and suggested additional exercises will be assigned from it, but is not strictly mandatory.

## Course Website

Canvas course page. Please check the canvas site regularly. Most course documents and important information, including homework exercises and solutions, sample exams and special announcements, will be posted in canvas.

## Virtual teaching

Due to COVID-19, this class is entirely online for the entire Fall 2020.

- Exam procedure: The quizzes and exams are also online and at this point we are not enforcing honor lock. This might change depending on the situation. Exams/quizzes will be due as an upload in the canvas.
- Class policy: The classes are mostly asynchronous as students can flexibly choose other classes that coincide with the same time-frame. However, some classes (maybe once every 2-3 weeks) will be done live in a synchronous fashion. For example the very first class will be live at 3 pm on Aug 31 and an announcement will be sent with the zoom link that morning. There is not a mandatory class attendance policy for the live lectures. The videos will generally be recorded and uploaded for the synchronous lectures as well. All the lecture notes/videos, except for the synchronous ones, will be uploaded before class time.
- Due to the online nature often times, some of these policies might need to change depending on how the class behaves or performs. Students should feel free to directly email the instructor to discuss concerns.
- In general, the number of announcements will be considerably more than an in-person class. These will generally talk about when certain lecture notes/exams become available or about some class policy. The zoom links for the class and office hours (both instructor and TA) are going to be the same throughout. This will be sent in the morning of the first class. Please keep checking the canvas announcement page regularly.

## Grades

- There will be four in-class exams (15%, 20%, 20% and 20%) and approximately nine quizzes, of which three will be dropped (counting for 25% in total).

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B+	84 to < 88	A	91 to 100	A-	88 to < 91
C+	74 to < 77	B	80 to < 84	B-	77 to < 80
D+	64 to < 67	C	70 to < 74	C-	67 to < 70
E	< 55	D	60 to < 64	D-	55 to < 60

- All grades are final and non-negotiable.

## Exams

- Four in-class (**non-cumulative**) exams are tentatively scheduled:

Exam 1: **Friday, Sept 16** (Covers Lecture 1 to Lecture 6)

Exam 2: **Friday, Oct 9** (Covers Lecture 7 to Lecture 15)

Exam 3: **Wednesday, Nov 4** (Covers Lecture 16 to Lecture 25)

Exam 4: **Wednesday, Dec 9** (Covers Lecture 26 to Lecture 36)

- You will be permitted to bring one 8.5 by 11 inches sheet of paper with formulas or notes written on both sides to each exam.
- Due to COVID-19 and related stressful situations the make-up exam policies are kept extremely flexible. You must either let the instructor know well before the scheduled day of the exam which you need to be excused from (for a non-emergency reason), or produce a proof of emergency (or medical problem) as soon after the missed exam as possible. **Since it is very difficult managing a lot of make up exams due to the pandemic situation, we will generally try to stick to at most one make up exam per student. Note that, if you take the make up exam before the rest of the class, you might get the same question but if you take it after the majority then you will have a separate exam**
- **Calculator:** A non-graphing calculator might be used for the exams and quizzes however you will not be penalized for not simplifying terms like  $\binom{20}{4}/\binom{30}{6}$

## Homework Exercises and Quizzes

- There will be eight/nine in-class quizzes, based on class/homework exercises assigned about a week before. Each will take place during the final 10 to 15 minutes of class time. No books, notes or other references may be used during a quiz. All quizzes have equal weight for grading, but three of your (lowest) quiz scores will be dropped. No make-up quizzes will be offered.
- You are encouraged to discuss homework problems with other students; however, you must answer on your own during the quizzes. Solutions to the homework exercises will be posted after the quizzes.
- The instructor and Teaching Assistant make every effort to ensure that grades assigned are scrupulously fair and reflect the quality of the work concerned. Due to this process of consultation and the use of uniform grading criteria, the TA has complete authority in all actions that he undertakes regarding the quizzes, and the instructor is unlikely to rescind any of his decisions.

## **Suggested Additional Exercises**

In order to master the course material it is essential that you work as many exercises as possible. For this reason, along with the weekly homework exercises, additional suggested exercises from the textbook will also be posted on the course web-page on a regular basis. You are not expected to submit answers to these suggested exercises, but you should solve all of them to keep up with the pace of the course and thoroughly learn the material. This will also help you prepare for the exams.

## **Lecture Attendance**

Classroom lecture attendance is fully expected, even if not strictly enforced. You are responsible for learning all material presented during lecture, and any topic covered is a potential exam topic (unless otherwise stated).

## **Reasonable 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 one week in advance of the date for which the accommodation is requested. This course information and policies sheet can be made available in alternative formats to accommodate print-related disabilities. Contact the instructor for more information.

## **Academic Integrity**

Please familiarize yourself with the Student Honor Code and Academic Honesty Guidelines outlined in your University of Florida Student Guide at <http://www.dso.ufl.edu/sccr/honorcode.php>.