



STA 4322/5328

Spring 2021

Introduction to Statistical Theory /
Fundamentals of Statistical Theory

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Office hours: Monday 1:45-2:45pm, Wednesday 4-5pm, Friday 4-5pm

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Office hours: Tuesday 2:30-4pm and Thursday 1-2:30pm

Course website: <https://ufl.instructure.com/> The portal for UF's E-learning website.

Prerequisite(s): STA 4321/5325

Credit Hours: 3

Course lectures: Attendance for lectures is strongly recommended and they will be given MWF from 3:00pm to 3:50pm. Students enrolled in class number 18946 are expected to attend the live lectures in [Anderson Hall 0134](#). Students enrolled in class number 26357 or 18975 are expected to join the live lectures through Zoom and are NOT allowed in the live lectures because of social distancing rules in place due to COVID-19.

We will likely be recording the lectures and posting them to the course website, but this is our first semester working with HyFlex teaching, so please attend the live session at least until that is figured out properly.

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.

Course Notes/Material: 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 that we cover in class, however, I will likely present some additional material in class that is not posted on the course website. Practice problems will be posted in the end of the week.

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

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. Major topics of STA 4322/5328 include normal-theory sampling distributions, estimation methods, properties of point estimators, confidence intervals, hypothesis testing and related theory, and basic linear regression. The primary purpose of STA 4322/5328 is preparation for graduate-level study in statistics and closely related subjects.

Tentative Course Outline

Week	Content
1	Estimators, unbiased estimators, mean squared error
2	Unbiased estimators, chi-squared distribution, t-distribution
3	Evaluating estimators, confidence intervals
4	Central limit theorem, two population problems
5	EXAM 1
6	Efficiency, Consistency, sufficiency, likelihoods
7	MVUE estimators, Rao-Blackwell, method of moments, maximum likelihood
8	Maximum likelihood, statistical tests
9	Hypothesis tests, Type II error
10	EXAM 2
11	P-values, Neyman-Pearson lemma, Uniformly most powerful tests
12	Likelihood ratio tests, linear models, least squares estimators
13	Least squares, multivariate linear models
14	Multivariate linear models
15	EXAM 3

COVID related practices for face to face attendance

- You are required to wear approved face coverings at all times during class and within buildings. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution. UF's policy on masking and physical distancing can be found here (<https://policy.ufl.edu/policy/masking-and-physical-distancing/>). Note that the policy clearly states that "Masks with exhalation valves or vents allow air to be expelled and are prohibited" and "neck gaiters and bandanas should not be worn unless no other face covering is available". Students without masks will be asked to leave.
- This course has been assigned a physical classroom with enough capacity to maintain physical distancing (6 feet between individuals) requirements. Utilize designated seats and maintain appropriate spacing. Do not move desks or stations.
- Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down. Please clean your work area thoroughly when the class is completed.
- Practice physical distancing when entering and exiting the classroom.
- **IMPORTANT:** If you are experiencing COVID-19 symptoms ([Click here for guidance from the CDC on symptoms of coronavirus](#)), please use the UF Health screening system and follow the instructions on whether you are able to attend class. [Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms](#).

Office hours

Office hours will commence on January 19th.

All office hours will be held via Zoom for students in either the online or in-person sections.

Office hours will not be recorded.

Office hours: Zoom Meeting ID [918 0451 2502](#)

Office hours passcode: 729512

Homework

There will be three homework assignments spread out throughout the semester. You are allowed to work together on homework assignments although I strongly encourage you to try all problems on your own before consulting with fellow classmates. There will be a homework assignment every two weeks and it will be due via Canvas submission.

Exams

There will be three exams. All exams will be conducted online and proctored electronically by the vendor determined by the university (Honorlock most likely), including for students who are registered to attend in person. Practice exams and practice exam solutions will be posted on the website.

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 two days **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. A grade of zero is the minimum punishment of any type of dishonesty on an exam.

All exams are closed book, closed notes and closed internet. Use a wired connection, not wireless, if possible. You may use a scientific calculator during the exam, but NOT a cell phone or any type of device that connects to the internet or other people. Accessing notes and formulas from the course during the exam is cheating. Accessing your cell phone or communicating with another individual during the exam is also considered cheating. It is an honor code violation to copy, take pictures or disseminate any of the exam questions anywhere, to anyone. For exam security reasons, all students must take the exam at the same time. Academic dishonesty on any exam will result in a *minimum* penalty of a grade of *zero* on that exam.

Important dates (These are tentative and subject to change. Changes will be announced on the course website)

Homework #1 Due Jan 29th at 2pm

Exam #1 February 10th

Homework #2 Due Mar 5th at 2pm

Exam #2 March 17th

Homework #3 Due Apr 9th at 2pm

Exam #3 April 21st

Grade distribution

Exams 1, 2 and 3 25% each

Homework 25%

Letter grade assignment

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.

		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
		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.

UF and CLAS Policies

Dropping, Withdrawing and Incomplete

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/>

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/](https://evaluations.ufl.edu/results/).