



STA 4322/5328 (13446/19670)

Summer 2023

Introduction to Statistics Theory

MTWRF: 12:30-13:45 in FLO 100

**Instructor:** Demetris Athienitis

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**Course Website:** [e-Learning](#)

**Lectures:** In-person.

**Course Material:** Material/Slides will be provided in course website.

**Course Communication:**

- Discussion forum (Microsoft Teams).
- Office hours (posted under “Pages” in Canvas).
- E-mail for questions regarding course policies. (Ensure that **STA 4322/5328** is in the subject line. Failure to do so may result in a non-response.)

**Required Text(s):** *Mathematical Statistics with Applications*, 7<sup>th</sup> Edition (Chapters 7-11)

**Author(s):** Wackerly, Mendenhall, and Scheaffer **ISBN-13:** 9780495110811

**Course Description:** Second part of the sequence STA 4321-4322 (5325-5328). This course covers the fundamental theories of sampling distributions, central limit theorem, estimation, properties of point estimators, confidence intervals, hypothesis testing, common large sample tests, normal theory small sample tests, uniformly most powerful and likelihood ratio tests, linear models and least squares, correlation, and introduction to analysis of variance.

**Prerequisite(s):** STA 4321

**Credit Hours:** 3

**Software:** Statistical software R where relevant.

**Purpose of Course:** The course is designed to prepare students for graduate-level work in statistics and related fields, or for research in the sciences, social sciences or medical sciences of the type where advanced statistical methods are used.

**Course Goals and Objectives:** This course uses mathematical statistics to provide a rigorous understanding of statistical inference, such as point estimation, confidence intervals, and hypothesis testing for models based on standard parametric families.

## Course Policies

The instructor reserves the right to update any parts of this syllabus as necessary. Students will promptly be notified of any changes.

## Demeanor

All members of the class are expected to follow rules of common courtesy in all classroom discussions, email messages, threaded discussion and chats. Please refer to [expected class netiquette](#) online and during class.

## Assignments

- All **deadlines (excluding exams) are at 23:59** of the due/end date. These are *hard deadlines* meaning that any open or ongoing assignments will automatically be submitted at the deadline. No late assignments will be accepted under any circumstances.
- Students are expected to work independently, unless otherwise specified in writing. **Offering and accepting** solutions - even from textbook - is an act of **plagiarism**, which is a serious offense and **all involved parties will be penalized according to the UF Student Honor and Conduct Code**. Discussion amongst students is encouraged, but when in doubt, direct your questions to the instructor.
- Students are expected to **show and explain their work**.
- All electronically **submitted work must be as one merged file**. In Canvas, all uploaded files automatically get a grade of 0, until the teaching assistant grades them.
- Feedback will be provided within two business days from the assignment deadline.

## Homework/Quizzes

Under each module in e-Learning,

- **Homework** that are based on (primarily) textbook exercises.
- **Quizzes** that are *closed notes and timed* and range from conceptual to applied.

All deadlines are posted on e-learning. **Assignments are automatically submitted at deadline even if in progress.**

## Exams

There will be two (2) in-class exams with duration of 50-60 minutes that may comprise of multiple choice questions and/or open-ended questions (usually open-ended). Exams will emphasise more on conceptual questions while HW/Quizzes will be more computational (not always).

Allowed material:

- Provided formula sheet. Sheet will be provided ahead of time with practise set.
- Scientific/Graphing Calculator. No cell phones.

## Important dates:

Exam #1 ..... July 24, at 12:30  
Exam #2 ..... August 10, at 12:30

## Grading

### Grade distribution:

Exams 1 and 2    60% (25% lowest, 35% highest)  
Homework        25%  
Quizzes         15% (lowest 1 dropped)  
Extra Credit    extra 0-1% (discussion forum and class participation)

$$\begin{aligned} \text{Final} &= 0.25(\text{ lowest } ) + 0.35(\text{ highest } ) \\ &+ 0.25 \left( \frac{\sum \text{HW}}{10(\# \text{ of HW})} \times 100 \right) \\ &+ 0.15 \left( \frac{[\sum \text{quizzes}] - \text{lowest}}{10(\# \text{ of quizzes} - \# \text{ of drops})} \times 100 \right) \\ &+ \text{Extra} \end{aligned}$$

### Letter grade assignment:

There will be *no rounding up* of scores.

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

**Final grades shown on Canvas are not accurate because they do not account for the conditional weighing of exams and quizzes.** To view the result of the letter grades to your GPA please visit the [UF Grade and Grading Policies](#).

## Make-up

Requirements for class attendance and 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](#).

### Additional make-up policy requirements

- Every effort should be made to complete the assignment/exam during the open period. Only extreme situations will warrant a makeup. Contact the instructor prior to the exam - as soon as you realize you will be unable to take the assignment/exam at the scheduled time. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite for scheduling a makeup under such extenuating circumstances.
- If you have an emergency on the day of the assignment/exam, the instructor must be contacted by midnight of the day of the assignment/exam.
- Make-ups need to be scheduled within a week from the assignment deadline. Student is responsible for scheduling.
- Additional Note: Being on vacation or booking a trip prior to the completion of the semester is not a valid reason to request a makeup. Please reference the most recent [Academic Calendar](#).

## Addressing Issues

### Technical difficulties

Please contact the UF Help desk via e-Learning “Help” tab. Any requests for make-ups due to technical issues must be accompanied with appropriate documentation/proof including screenshots and communication with the help desk. You **MUST** contact your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

### Grievances/Commendations

Should you have any grievances or commendations with your experience in this course you can always address them to the instructor (anonymously) or to the Department of Statistics. For issues that are not satisfactorily resolved at the department level or which seem to be broader than one department, students are referred to the Office of the Ombuds.

## UF and CLAS Policies

## Dropping, Withdrawing and Incomplete

### Dropping and Withdraw

For late course drops and course withdrawals check the [catalog](#).

## 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 policy and contract](#).

## Accommodating Students with Disabilities

Students requesting accommodation for disabilities must first register with the [Disability Resource Center \(DRC\)](#). The DRC 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.

## U Matter, We Care

[U Matter, We Care](#), through the Dean of Student's Office, offers care related resources and programs focused on health, safety, and holistic well-being.

## Academic Misconduct

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

## Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

## Tentative Course Outline

Chapter	Content	Textbook	HW/Quiz
1	Estimators, Sampling Distributions and Central Limit Theorem	8.1-8.4, 7.1-7.3	1.1-1.2
2	Estimation	8.5-8.6, 8.8-8.9	2-3
3	Properties of Point Estimators and Methods of Estimation	9.1-9.7	4-5
Exam 1			
4	Hypothesis Testing	10.1-10.6, 10.8, 10.10-10.12	6-7
5	Linear Models and Estimation by Least Squares	11.3-11.4, 11.6, 11.10-11.14	8-9
Exam 2			