



STA 3032 - UFO Program (Class number 14493)

Spring 2026

Engineering Statistics

**Instructor:** David Lindberg

E-mail: [dlindberg@ufl.edu](mailto:dlindberg@ufl.edu)

**Teaching Assistant:** Michael O'Connor

E-mail: [occonnor.mw@ufl.edu](mailto:occonnor.mw@ufl.edu)

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

**Course Material and Supplies Fees:** Teaching will be asynchronous except office hours and exams.

- Class notes. (Available on Canvas).
- Slides. (Available on Canvas).
- Pre-recorded videos. (Available on Canvas).
- This course will participate in the UF All Access program. **Instructions provided in Canvas “Start Here” page.** Go to <https://bsd.ufl.edu/allaccess> to obtain an access code. Select this class that requires MyStatLab. Do not opt-in to anything else. Codes can also be purchased from the bookstore, but at a higher cost. Any code obtained outside of UF All Access will not work for the course.
- Honorlock for proctoring.
- Statistical software R.

**Required Text(s):**

1. *Probability & Statistics for Engineers & Scientists*, 9<sup>th</sup> Edition available via UF All Access  
**Author(s):** Walpole, Myers, Myers, Ye
2. *The Book of R*  
**Author(s):** Tilman M. Davies; **ISBN-13:** 9781593276515

**Course Communication:**

- Discussion forum (link to Microsoft Teams available on the course website).
- Live office hours via Zoom (available on the course website).
- Email for questions regarding course policies. (Ensure that **STA 3032** is in the subject line; failure to do so may result in a nonresponse.)

**Course Description:** Basic concepts in probability, statistics, engineering applications. Use of computational methods, logic, reasoning. Formulation of mathematical models, application of statistical techniques, solution of real-world problems. Topics include probability, random variables, estimation, hypothesis testing, correlation, regression, analysis of variance.

**Prerequisite(s):** MAC 2311

**Credit Hours:** 3

## Course Objectives

This course satisfies general education credits in the mathematical sciences. This course is the [general education category of M](#).

### Course Goals and Objectives:

1. Access, manipulate and analyze data using statistical software.
2. Produce appropriate graphs and descriptive statistics for one and two variables, for both categorical and continuous data.
3. Interpret graphs and descriptive statistics for one and two variables.
4. Understand and apply the basic probability rules, the concepts of expected value and variance for discrete and continuous variables.
5. Understand and apply the Central Limit Theorem, which is crucial for inference.
6. Synthesize computational strategies for solving equations and inequalities, logic, statistics, and inductive and deductive reasoning.
7. Formulate mathematical models and arguments, using statistical models to solve problems and applying relevant concepts effectively to real-world situations.
8. Understand, apply and evaluate confidence intervals and hypothesis tests.
9. Apply and interpret one-sample and two-sample analyses for means and proportions.
10. Apply and interpret statistical modeling using multiple regression and analysis of variance.

**Student Learning Outcomes:** At the end of this course, students will be expected to have achieved the following learning outcomes:

- Content
  - Identify, describe, and explain the basic concepts, theories, and terminology of natural science and the scientific method, and apply them to analyze various systems.
  - Demonstrate proficiency in accessing, manipulating, and analyzing data using statistical software, and producing appropriate graphs and descriptive statistics for one and two variables, across both categorical and continuous data.
  - Interpret graphs and descriptive statistics for one and two variables, drawing meaningful insights from the data.
  - Understand and apply the basic probability rules, as well as concepts of expected value and variance for both discrete and continuous variables.

- Apply the Central Limit Theorem effectively for inference, providing a foundation for statistical reasoning.
- Formulate mathematical models and arguments, utilizing statistical models to address real-world situations and provide effective solutions.

Assessments will be made with textbook based assignments, coding assignments, quizzes, and exams.

- Critical Thinking

- Formulate empirically-testable hypotheses derived from the study of physical processes or living things, demonstrating a capacity for scientific inquiry and logical reasoning.
- Apply logical reasoning skills effectively through scientific criticism and argument, enabling rigorous evaluation of scientific ideas and theories.
- Apply techniques of discovery and critical thinking effectively to solve scientific problems and evaluate outcomes, demonstrating analytical skills in problem-solving. Assessments will be made with textbook based assignments, quizzes, and exams.

- Communication:

- Communicate scientific knowledge, thoughts, and reasoning clearly and effectively, both in written and verbal form.
- Report on statistical analysis of people’s attitudes towards choices based on the framing of the choices, presenting findings with clarity and precision.
- Report on statistical analyses of global warming, employing numeric and graphical presentation to effectively convey information.

Assessments will be made with textbook based assignments.

## Course Policies

The instructor reserves the right to update parts of this syllabus in the event of extenuating circumstances. 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](#).

## Assignments

- All **deadlines are at 11:59pm Eastern Time** of the due/end date. These are **hard deadlines** meaning that any open or ongoing assignments will automatically be submitted at the deadline. For example you should not start an assignment at 11:58pm.
- Students are expected to work independently, unless otherwise specified in writing. **Offering and accepting** solutions from others 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.

## Types of Course Assignments

Under each module in e-Learning,

- **Projects** that are based on (primarily) textbook exercises. There are 10 total projects. Projects are graded out of 30 points and are subject to a 5 point penalty (out of 30) for each day submitted after the deadline.
- **R assignments** that are similar to (secondary) textbook exercises. There are 6 total R Assignments. R Assignments are graded out of 10 points and are subject to a 1.5 point penalty (out of 10) for each day submitted after the deadline.
- **Quizzes** that are *timed* and range from conceptual to applied. Quizzes are administered through Honorlock. For (more) complete information about Honorlock please visit the “Start Here” page of the class website. You will be provided a formula sheet and access to R for each quiz. Scratch paper is not allowed. You have one attempt for each quiz. There are 11 total quizzes, and the lowest quiz score is dropped. Each quiz is graded out of 10 points, and must be submitted before the posted deadline.
- **MyLab StudyPlan** Mastery Points (MP). Pearson provides a built-in study plan that has been assigned. Each section has practice problems that will subsequently open up the “Quiz Me” that contains 5 questions and 60% needed to earn the Mastery Points. Up to 2% (out of 100%) can be added to your grade based on the number of Mastery Points earned (extra credit). You must complete 75 Mastery Points to earn full extra credit for this part of the grade (partial extra credit will also be awarded). Mastery points can be earned from any Quiz Me available to you. All Mastery Points must be earned before Wednesday, April 29. Although the Pearson MyLab StudyPlan is optional, it is recommended for added practice throughout the semester.

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

## Exams

After the completion of certain modules, exams will be administered through Honorlock. For (more) complete information about Honorlock please visit the “Start Here” page of the class website. *Due to the nature of online exams via Canvas, it is important to keep in mind that technical issues may arise and although we try to implement fail-safes, please try to plan accordingly by saving work, documenting issues and preparing any material ahead of time.*

- Exams are timed with a duration of 75 minutes and will be **available between 8:00am - 11:59pm Eastern Time for 1 day only**. Be sure to study the material and familiarize yourself with the Canvas procedures prior to the exam.
- Only 1 attempt.
- Only allowed **one screen/monitor**.

- It is highly encouraged to use a **reliable device** with a **reliable internet connection**. Being disconnected means that you are no longer supervised which could potentially mean that your exam will not be graded.
- You must show your work either by entering your work into a textbox at the top of the exam, or by entering the work into the R calculator. Any question that requires calculation in R and work was not shown may be given a grade of 0.
- Practice problems (not practice exams) will be provided.
- Scratch paper is not allowed.

**Allowed material:**

- An instructor provided formula sheet and access to R will be provided through the exam.

**Important dates (times are Eastern Time):**

Exam #1 ... Thursday, February 19, 8:00am - 11:59pm  
 Exam #2 ..... Monday, March 30, 8:00am - 11:59pm  
 Exam #3 ..... Tuesday, April 28, 8:00am - 11:59pm

## Honorlock Proctoring

Proctoring for quizzes and exams is through Honorlock.

- Before starting an assessment, you must have access to the following:
  - Working webcam
  - Microphone
  - Stable internet connection
  - Google Chrome browser with Honorlock extension
- You must use Google Chrome browser as this is the only browser compatible with the Honorlock proctoring system.
- You must disable any Google Chrome browser extensions except for the Honorlock extension before taking the assessment.
- You must be seated at a desk or table while taking the assessment.
- You must show your government-issued ID or Student Gator One ID to the camera before starting the assessment.
- You may not have a second monitor or a virtual machine connected to your computer during the assessment.
- You must ensure that your audio is working so you can be heard throughout the proctored session. Failure to have working audio during the assessment may result in your quiz or exam not being graded.
- You must ensure that your face and upper body are fully visible throughout the entirety of the assessment
- You must not speak or talk during the assessment

- Students must perform a scan that involves showing the following. Failure to complete all the required steps may result in your assessment not being graded.
  - Show your workspace or desk from where you will be seated. You do not need to scan the entire room, only from where you are seated.
  - Use an external webcam, a mirror, or your cell phone camera to show that there is nothing present on your monitor screen or keyboard.
  - Show your cell phone being turned off on camera and being placed behind you out of reach (on a chair, desk, table, etc.).
  - An example video is provided on Canvas
- For more details, see the Start Here page on Canvas.

## Grading

### Grade distribution:

Exams	45%	(15% each)
Projects	20%	
Quizzes	20%	(includes Intro quiz, lowest quiz dropped)
R assignments	15%	
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Total	100%	
Extra Credit	2%	(MyLab StudyPlan)

Final grade can be calculated using:

$$\begin{aligned}
 \text{Final} &= 0.15(\text{Exam 1}) + 0.15(\text{Exam 2}) + 0.15(\text{Exam 3}) \\
 &+ 0.20 \left( \frac{\sum \text{projects}}{300} \times 100 \right) \\
 &+ 0.20 \left( \frac{\sum \text{quizzes} - \text{lowest}}{100} \times 100 \right) \\
 &+ 0.15 \left( \frac{\sum \text{R assignments}}{60} \times 100 \right) \\
 &+ 0.02 \left( \frac{\sum \text{Mastery Points}}{75} \times 100 \right) \quad [\text{Extra Credit}]
 \end{aligned}$$

### Letter grade assignment

There will be *no rounding up* of scores.

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

- A minimum grade of C is required for general education credit.

- 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](#) and [Examination Policies](#).

## 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 at least 7 days 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

\* Additional topics included.

Module	Week	Content	Notes	Textbook	Projects
1	1-2	Summary Statistics: Location and Spread	1.1-1.3	1.1-1.5	1
		Graphical Summaries	1.4	1.6	
2	2	Sample Space, Events and Probability	2.1-2.2	2.1-2.2, 2.4-2.5	2.1
		Counting Methods: Permutations and Combinations	2.3	2.3	
		Conditional Probabilities and Independence	2.4	2.6, 2.7	
	3-4	Random Variables: Properties	2.5.1-2.5.8	3.1-3.4, 4.1-4.4	2.2
	4	Random Variables: Binomial, Geometric, N.B., Poisson	2.5.9	5.1-5.2, 5.4-5.5	2.3
		Random Variables: Uniform, Normal, Chi-Square, t, F	2.5.10	6.1-6.4, 6.7, 8.6-8.7	
	5	Central Limit Theorem	2.6	8.3-8.4	
Normal Probability/Quantile Plot		2.7	8.8		
Exam 1					
3	6	Inference on Population Mean: Confidence Intervals	3.1.1	9.1-9.5	3.1
		Inference on Population Mean: Hypothesis Tests	3.1.2	10.1-10.4	
	7	Inference on Population Proportion	3.2	9.10, 10.8	
		Inference on Population Variance	3.3	9.12, 10.10	3.2
		Distribution Free Inference: Sign and Wilcoxon	3.4	16.1-16.2	
4	8	Inference on Two Population Means: Confidence Intervals	4.1.1	9.8, 9.11	4
		Inference on Two Population Means: Hypothesis Tests	4.1.2	10.5, 10.9	
		Inference on Two Population Variances	4.2	9.13, 10.10	
	9	Distribution Free Inference: Wilcoxon and Levene	4.3	16.2-16.3	
		Contingency Tables: Test of Independence (Pearson)	4.4	10.12	
Exam 2					
5	10	Simple Linear Regression	5.1.1-5.1.6	11.1-11.6, 11.8	5.1
	11-12	Checking Assumptions and Transforming Data	5.2	11.10	
		12-13	Multiple Regression (I)	5.3.1-5.3.2	12.1-12.2, 12.4
	Multiple Regression (II)		5.3.3	12.5-12.6	
6	14-15	Qualitative Predictors	5.4	12.8-12.9	
		Completely Randomized Design (CRD)	6.1.1	13.1-13.3	6
		CRD: Post Hoc comparisons	6.1.2	13.6	
Randomized Complete Block Design (RCBD)	6.2.1	13.7-13.8, 13.11			
Exam 3					