STA 3033, Section U03 (Class Ref # 81721), Fall 205, Main Session (16 Weeks)

(August 25, 2025 – December 6, 2025)

Introduction to Probability & Statistics for CS and Engineering

Campus: MMC

Days: Mondays & Wednesdays

Time: 5:00PM – 6:6:15PM

Classroom: PC438

Course Modality: F2F (Class Lectures)

Prerequisite: Calculus II (MAC 2312 or any equivalence) & Basic Knowledge of Using the Internet and Canvas

Professor Information:

Dr. H. Zahedi
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Canvas login: https://canvas.fiu.edu/

Office Hours:

Mondays & Wednesdays: 3:30 PM – 4:50 PM (no appointments required for these hours)
Other Times and Days: By appointments, subject to times availability
Feel free to consult with me, as often as you need, and whenever problems arise.

Course Description and Purpose

This is an introductory, calculus based, undergraduate course in basic probability and statistical inference based on a single variable for Computer Science and Engineering Majors. The course is intended to teach these students some basic ideas and techniques in descriptive statistical analysis, random events, and notions of probabilities, commonly used univariate discrete and continuous random variables and thier probability models, statistics, sampling distributions, point estimations, interval estimations, and testing hypotheses for some most used parameters, please see the included short course syllabus at the end and read the Introduction for each covered Chapters which are posted on the Canvas. We will cover most of the topics in chapters 1, 2, 3, 4, 5 (only sections 5.3 and 5.4), 6, 7, 8 plus some additional related topics in the form of class notes.

For more detailed pleas click on the following link: *Course Syllabus and Course Policies*

Course Goals

Upon completing this course, students will be able to:

*   Identify an statistical problem, underlying data and the assumption used in collecting the data. Then, use the basic knowledge of probability and statistics to analyze and answer the questions in the problem. Interpretation of a probability as a quantification measure of uncertainty for a random event.

*   Describe data in the problem with graphical and numerical descriptive methods.

*   Compute and interpret basic probabilities for random events.

*   Evaluate different appropriate probability models for random variables.

*   Review sampling schemes, samples, review some basic sampling distributions and their properties.

*   Point and interval estimations (confidence intervals) for some commonly used unknown population parameters.

*   Statistical testing hypotheses, assumptions, interpretations, conclusion, and presenting the results for some commonly used parameters (one sample and two sample problems).

(For More Detailed Course Syllabus and Course Policies click on the following link: Course Syllabus and Policies)

Policies & Resources:

* All FIU students enrolled in the class must have a valid FIU (picture) ID card and be ready to show the ID at the professor's request (for example, when taking the exams.) Also note that all FIU students should use FIU email to communicate with the professor.

* This is a Web Assisted Course using Canvas. Students enrolled in this course are expected to have a Valid FIU Email Account and be familiar with the basics of internet use. Note, this is neither online nor a remote teaching course. The purpose of web-based materials is to enhance and complement the classroom' lectures and the textbook, to post review notes and formulas, and to do web-based review-quizzes on Canvas environments and to facilitate and enhance learning and teaching. Canvas materials are not intended to substitute for the class lectures; and students are expected to attend classes regularly.

* Exams are based on all materials covered and discussed in lectures, assignments, possible review quizzes and projects. Students are strongly advised to attend all class lectures, and to be on time. No late Assignments will be Accepted.

* Anyone who misses any exam/ or a possible review quiz will receive an F (score of 0) for that exam/ or / that quiz.

* Makeup for an exam or quiz will be given only if the student misses the or the quiz due to those emergency cases which meet all the University's requirements for makeup, such as the student's illness. See the FIU students' handbook for details.

* Failure to complete and submit any graded review quiz or a graded assignment withing its deadline would result in an F (score of 0) grade for that review quiz or assignment.

* No active Beepers, Cellular phones or any other Smart Medias are allowed during exams. Students are expected to silence their cell phones during the class lectures.

* You may use AI programs such as ChatGPT to help you understand the technical words and concepts used in Statistical fields (Applied Statistical, Probability and Mathematical Statistical, Statistical Analysis Commonly Used in Engineering and Computer Science such as Statistical Reliability Modeling and Analysis). But you should realize materials generated by AI programs could be inaccurate, incomplete or completely wrong. In addition, the frequent use of AI programs will negatively impact your own analytical thinking process. In this course you should not submit any Completed Chapter Review Assignments or Chapter Review Quizzes that are done and generated by AI Programs or copied from other individuals. If you submit materials generated by an AI program or copied from others, it would be considered plagiarism and cheating and it will be dealt with strongly, under FIU Policies for Plagiarisms.

Student Conduct and Academic Integrity

Promoting community, civility, and accountability

The Office of Student Conduct and Academic Integrity (SCAI), works to ensure that FIU is a "safe and stimulating environment in which scholarship and personal growth may occur." (Code, pg. 1). SCAI is tasked with administering the application of FIU Regulation 2501, the Student Conduct and Honor Code (Code) in a fair and developmental manner. Through the application of the Code, the safety and growth of community members is protected, and the integrity of an FIU degree is preserved. Detailed information about student conduct and academic integrity is available here:

https://report.fiu.edu/

Core Principles of this Course

This course will serve to embrace the diversity and inclusivity found within Florida International University. We appreciate and respect diversity, equality, equity, cooperativeness, community, and sustainability within our online courses. We are committed to the ongoing education of our students and their participation within the course regardless of gender, ethnicity, age, sexual orientation, geographical location, religion, and disability. We strive in encouraging collaboration by preparing our students to value the differences in others. At the core of our intentions is the encouragement of acceptance and appreciation of differences within our student population and community.

Nondiscrimination Statement

The Office of Civil Rights Compliance and Accessibility (CRCA) is responsible for ensuring that FIU maintains a workplace and learning environment free from discrimination, where current and prospective faculty, staff, and students are treated equitably. If any student, employee, or applicant has a sincere and reasonable belief that they have been discriminated against or harassed based on age, color, disability, gender, marital status, ethnic or national origin, race, religion, retaliation, sex, or any other protected category, they can report their concerns to the CRCA team through: https://report.fiu.edu/

Textbook:

"Probability and Statistics for Engineers" by J. Devore, 9th edition 2016, Cengage Learning. The optional book package deal comes with some additional course materials for students.

Coverage & Objectives:

We will cover most of the topics in chapters 1, 2, 3, 4, 5 (only sections 5.3 and 5.4), 6, 7, 8 plus some additional related topics in the form of class notes. This is an introductory, calculus based, undergraduate course in basic probability and statistical inference based on a single variable for Computer Science and Engineering Majors. The course is intended to teach the students some basic ideas and techniques in descriptive statistical analysis, random events, and probabilities, commonly used univariate discrete and continuous probability models, statistics, sampling distributions, point estimations, interval estimations, and testing hypotheses for some commonly used parameters. For more details, please see the included short course syllabus at the end. Also read the introduction for covered chapters that are posted in the Canvas.

Assignments:

Weekly Review Assignments and Recommended Homework Problems from the textbook. See the list of suggested homework problems from the textbook and other supporting materials on Canvas.

Tentative Exams:

Quizzes: TBA (maybe online)

Exam I: Wednesday September 24, 5:00PM – 6:15PM, PC 438

Exam II: Wednesday, October 29, 2025, 5:00PM – 6:15:00PM, PC 438

*Final Exam: Monday, December 8, 2025, 5:00PM – 7:00PM, PC 438

*You should not register for courses that have a final examination conflict with this course.

Grading Scheme:

5% Attendance,

15% Chapters' Review Assignments,

20% Quizzes,

20% Exam I;

20% Exam II,

20% Final Exam.

Approximate Grade Scaling:

[93 - 100] A,   [90 – 93] A-,

[85 – 89] B+,   [80 – 84] B, [75 - 80) B-

[70 - 75) C+,   [60 - 70) C,   [50- 60) D,   [0 - 50) F

Note: Anyone who does not take the final exam could receive an F for the course

Some Important Dates (Fall 2025, 16 weeks)

Classes Start: **Monday, August 25, 2025**

Last Day to Add/Drop: **Sunday, August 31, 2025**

Labor Day (No Classes):   **Monday, September 1, 2025**

Last Day to Drop with a DR Grade: **Monday, November 3, 2025**

Veterans Day (No Classes):   **Tuesday November 11, 2025**

Thanksgiving Holiday Break (No Classes):   **Wednesday–Sunday, Nov. 26-30, 2025**

Last Regular Class Day: **Saturday December 6, 2025**

Finals Week (Required Class Meetings) *   **Monday-Saturday, Dec. 8-13, 2025**

End of Term: **Saturday December 13, 2025**

Commencement: **Monday-Thursday, Dec. 15-18, 2025**

Grades Available for Students: **Thursday December 18, 2025**

If a final exam is not required, classes are expected to be held during finals week

For further information and other important dates please visit:

https://onestop.fiu.edu/_assets/calendars/2025-2026-academic-calendar-rev-dmb-11-19-2024.pdfknow-your-dates.pdf

Note: The course outline is subject to possible changes, and in case of any changes, you will be notified in advance.

STA 3033
Intro. To Probability & Statistics for CS and Engineering
Course Syllabus

Prerequisite:
>Calculus II; (Calculus II)

Textbook:
>Probability and Statistics for Engineers, by Jay L. Devore, 9h edition, Cengage Learning.

Topics Coverage:
Overview and Descriptive Statistics:
s, and tools for summarizing, displaying and analyzing data sets. Populations,
>>Samples and Processes, Pictorial and Tabular Methods in Descriptive Statistics, Measurers of Locations, Measures of Variability, Other measures. (Approximately 1.5)

Probability:
>>Introduction, Sample Spaces and Events, Axioms, Interpretations and Properties of Probability, Counting Techniques, Conditional Probability, Independence. (Approximately 2 weeks)

Discrete Random Variables and Probability Distributions:
f a Random Variable, Probability Distributions for Discrete Random Variables,
>>Cumulative Distribution Function, Expected Values, The Bernoulli, and Binomial Distributions, Geometric Distribution, Negative Binomial Distribution, Poisson Distribution, Hypergeometric Distribution. (Approximately 2 Weeks)

Continuous Random Variables and Probability Distributions:
y Density Functions, Cumulative Distribution Functions; Expected Values, The
>>Normal Distribution, The Exponential and Gamma Distributions, Other Contiguous Distributions (such as Beta Distribution, Weibull Distribution, Probability Plots) (Approximately 2.5 weeks)

Statistics and Sampling Distributions:
d Their Distributions, The Distribution of the Sample Mean (Additional Topics:
>>Sampling Distribution of a Sample Variance, Central Limit Theorem, Normal Approximation to the Binomial Distribution). (Approximately 1 week)

Point Estimation:
>>Introduction, Some General Concepts of Point Estimation (Unbiasedness, Consistency, Minimum Variance Estimators, . . ., etc.)

Statistical Intervals Based on a Single Sample:
timators, Basic Properties of Confidence Intervals, Large-Sample confidence
>>Intervals for Population Mean and Proportion, Confidence Intervals Based on a Normal Population Distribution, Confidence Interval for the Variance and Standard Deviation of a Normal Population, (Some Common Confidence Intervals). (Approximately 2 Weeks)

Tests of Hypothesis Based on a Single Sample:
>>Introduction, Hypothesis and Test Procedures, Z-Tests for Hypotheses about a population Mean, One Sample T-Test, Tests Concerning Population Proportion

Inferences (Tests of hypotheses and Confidence Internals) Based on Two Samples
>>Z Tests and Confidence Interval for a Difference Between Two Population means, Two Sample T Tests and Confidence Intervals for Difference Between Two Population Means, Analysis of Paired Data, Inference Concerning a Difference Between Two Population Proportions, Inference Concerning Two Population Variances, Testing about the Mean, the Proportion, The Variance, the Difference between Two Means, the Difference Between Two Proportions, Paired T-Test, and Testing he Ratio of Variances. (Approximately 2.5Weeks)