Number:	**STAT/CS/SE 3341.0U1**
Title:	**Probability and Statistics in Computer Science and Software Engineering**
Term:	Summer 2025
Hours:	Monday & Wednesday, 12:30 – 2:30 PM
Classroom:	JSOM 2.115

Instructor Information

Name:	**Octavious Smiley**, Assistant Professor of Instruction
Email:	`Octavious.Smiley@UTDallas.edu`
	Please include the course and section number when emailing me
Office:	FN 3.118B
Hours:	Wednesday 11:15 AM-12:15 PM

Teaching Assistant Information

Name:	**Salma Jannaty**
Email:	`MostSalmaYeasmin.Jannaty@UTDallas.edu`
Tutoring:	The Student Success Center Peer Tutoring program is offering drop-in tutoring (but not one-on-one appointments)

Course Information

Pre-requisite:	(MATH 1326 or MATH 2414 or MATH 2419), and (CE 2305 or CS 2305) and (MATH 2418)
Description:	Axiomatic probability theory, independence, conditional probability. Discrete and continuous random variables, special distributions of importance, and expectation. Simulation of random variables and Monte Carlo methods. Central limit theorem. Basic statistical inference, parameter estimation, hypothesis testing, and linear regression. Introduction to stochastic processes.
Required text:	*Probability and Statistics for Computer Scientists, 2nd edition* by Michael Baron
Non-required text:	*Probability and Statistics* by Morris H. DeGroot, *Probability and Statistics: The Science of Uncertainty* by Michael J. Evans (The answers are in the back of the book)

Learning Outcomes

Probability:	• Apply the fundamental probability rules and concepts. • Apply common discrete and continuous probability distributions. • Relate calculus to probability to solve probability problems. • Learn the basics of stochastic processes and its classical applications.
Statistics:	• Understand common numerical summaries and exploratory analyses of data. • Choose the appropriate statistical analysis method to answer a typical statistical question. • Construct confidence intervals and perform tests of significance to make statistical inferences.

Grading Policies

Summary:

- **40**%: Homework
- **10**%: Exam 1
- **10**%: Exam 2
- **10**%: Exam 3
- **10**%: Exam 4
- **20**%: Final Exam

Homework:

- Individual-based
- Must submit a pdf document (convert photos)
- Submit to eLearning
- Due 15 minutes prior to the start of class on the due data
- Lowest 2 homework scores will be extra credit
- No late assignments will be accepted under any circumstance

Exams:

- Individual-based
- One side of 3x5 NoteCard is allowed
- In-class
- Required supplies to bring: SCANTRONS, form F-1712-PAR-L (one for each exam; you will also need a no.2 pencil and a good eraser)
- No make-ups will be given under any circumstance

Final Exam:

- Individual-based
- Two sides of 3x5 NoteCard is allowed
- In-person
- Required supplies to bring: SCANTRONS, form F-1712-PAR-L (you will also need a no.2 pencil and a good eraser)
- If the final is not your lowest exam score, the final will replace your lowest exam score
- If your final exam score is lower than the average of your four regular exams (before any replacement is applied), then your final exam score will be replaced by that average instead
- No make-ups will be given under any circumstance

Grading Criteria

Grade	Percentage Range
A+	100+
A	[93, 100)
A-	[90, 93)
B+	[87, 90)
B	[83, 87)
B-	[80, 83)
C+	[70, 80)
C	[65, 70)
C-	[60, 65)
D+	[50, 60)
D	[40, 50)
F	[0, 40)

Course Schedule (Tentative)

Date	Topic	Due on this Date
Mon, June 2	Course overview + Probability Basics	
Wed, June 4	Combinatorics	HW1
Mon, June 9	Conditional Probability and Independence + Bayes Theorem	HW2
Wed, June 11	Discrete Random Variables and an Introduction to Distributions	HW3 (Friday)
Mon, June 16	Exam Review + Exam 1	
Wed, June 18	Expectations and Variance + practice questions	HW4 (Friday)
Mon, June 23	Families of Discrete Distributions + Continuous Random Variables	
Wed, June 25	Families of Continuous Random Variables + practice questions	HW5 (Thursday)
Mon, June 30	The Central Limit Theorem + Poisson, Exponential, and Gamma Connection	HW6
Wed, July 2	Exam Review + Exam 2	
Mon, July 7	Markov Processes and Markov Chains + Counting Processes	HW7
Wed, July 9	Introduction to Statistics + Parameter Estimation	
Mon, July 14	Parameter Estimation (MLE)	HW8
Wed, July 16	Exam Review + Exam 3	
Mon, July 21	Confidence Intervals	HW9 (Not Turned In)
Wed, July 23	Introduction to Hypothesis Testing + Z and T-Test	
Mon, July 28	χ^2 Distribution and Corresponding Tests	
Wed, July 30	Correlation and Regression	HW10
Mon, Aug 4	Exam Review + Exam 4	
Wed, Aug 6	Course Review	
Mon, Aug 11	Group Experiment (Mandatory Class Attendance)	
Wed, Aug 13	Final Exam	

Course Policies

Electronic devices:	Calculators are permitted for exams, but not cell phones, computers, tablets, etc. Limit the use of all devices during class.
Make-up exams:	No make up exams will be given
Late work:	No late homework will be accepted.
Special assignments:	No special assignment is available.
Class attendance:	Although attendance is not mandatory, you are encouraged not to miss any class as the course will move at a fast pace. The instructor will not make any accommodations for missing a class.
Comet Creed:	This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same: "As a Comet, I pledge honesty, integrity, and service in all that I do."
UT Dallas syllabus policies and procedures:	The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to http://go.utdallas.edu/syllabus-policies for those policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the instructor.