Spring 2018 SYLLABUS
EE3384: PROBABILISTIC METHODS IN ENGINEERING AND SCIENCE (21342)

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OFFICE HRS.:   Monday, Wednesday: **1:00-1:50 PM**
(tentative)   Tuesday, Thursday   **11:30 PM - 12:20 PM**
Friday (unless other meetings)   **11:00 AM - 12:00 PM**
(send e-mail or call before to confirm the Friday times)

CLASS TIME, PLACE: M,W   10:30 – 11:50 AM,   Liberal Arts (LART) 108

REQUIRED TEXTBOOK: Ross, Sheldon "**A First Course in Probability," 9th Edition,** Pearson, 2014.
Print ISBN: 9780321794772, 032179477X; eText ISBN: 9780321926678, 0321926676
The 8th Edition is also acceptable.

ENTRY IN COURSE SCHEDULE AND CATALOG DESCRIPTION:

Course Information Probabilistic Methods-Engr/Sci - EE 3384 - 001 CRN: **21342**

3384 Probabilistic Methods in Engineering and Science (3-0)
Problems involving discrete and continuous random variables, distribution functions, moments, statistical dependence, and an introduction to statistical methods. Emphasis (is) to be on formulation of physical problems.
Prerequisites: MATH 2313 (Calculus III), MATH 3323 (Matrix Algebra), EE2353 (C-T Signals and Sysems) each with a grade of "C" or better.

COURSE GRADING:

Three In-class Semester Exams (handwritten notes allowed):	60 %
Homeworks and Quizzes	25 %
Final Exam (optional for those not exempt)	15 %
TOTAL	100 %

KEY DATES:

Exam 1 *tentative* date:		**February 19 (Monday)**
Spring Break:	March 12-16	
Exam 2 *tentative* date:		**March 26 (Monday)**
Course Drop Deadline:	March 29	
==Exam 3 date:==		~~April 30 (Monday)~~ ==May 2, 2018== (Wednesday)
Final Exam Period:	May 7-11 (Final Exam for those below C after Exam 3)	

CALCULATORS: For exams and quizzes where it is needed, you can bring a simple, non-programmable, non-graphing scientific calculator. See paragraph below about FE Exam rules taken from page 27 of this document:
 https://ncees.org/wp-content/uploads/ExamineeGuide_January-2018.pdf

Approved Calculators
Only models of calculators listed below are permitted in the exam room.
*   Hewlett Packard—**HP 33s** and **HP 35s** models, but no others.
*   Casio—All **fx-115** and **fx-991** models. Any Casio calculator must contain **fx-115** or **fx-991** in its model name.
*   Texas Instruments—All **TI-30X** and **TI-36X** models. Any Texas Instruments calculator must contain either **TI-30X** or **TI-36X** in its model name.

USE OF E-MAIL: Each student is required to read their officially registered UTEP e-mail account often enough to monitor ongoing information related to this course.   The use of paper documents will be minimized in favor of electronic documents.

COMPUTER USAGE: The MATLAB software package is available to all EE students.   Matlab will be used to computationally experiment with the theory of probability and random variables.

Topical Outline for EE 3384 based on 8th edition of the textbook (see more
details in the Homework assignments)

I.   **Chapter 1, Sections 1.1 - 1.5 – Combinatorial Analysis**

II.   **Chapter 2, Sections 2.1-2.5 – Axioms of Probability**

III.   **Chapter 3, Sections 3.1-3.4 – Conditional Probability and Independence**

IV.   **Chapter 4, Sections 4.1 - 4.10 (Skipping 4.8)   – Random Variables (discrete)**

V.   **Chapter 5, Sections 5.1-5.5, 5.7 – Continuous Random Variables**

VI.   **Chapter 6, Sections 6.1, 6.2, 6.3 (6.3.1and 6.3.3), 6.4, 6.5 – Jointly Distributed Random Variables**

VII.   **Chapter 7, Sections 7.1, 7.2 (Examples 2a, 2b, 2c and 2e), 7.4 (Examples 4a, 4b, and 4e), and 7.7 (Examples 7a-7d) – Properties of Expectation**

VIII.   **Chapter 8, Sections 8.1-8.3 no 8.4 – Limit Theorems**

How do I survive and thrive in this course?
Probability and Statistics is the most widely-accepted discipline backing up science and engineering knowledge and decisions!   Understanding this material will dramatically benefit you for the rest of your engineering career and in your everyday life.   It is a difficult topic and I suggest that you re-consider and strengthen your approach, including:

• Do the homework: Probability looks deceptively simple at first but this changes quickly.   Please be aware that many problems are stated in the English language in an attempt to relate the topic to your everyday life and the physical world. Solving problems is the best way to gain enough understanding.   Past experience has shown that those who do not do the homework have little chance of passing the course with a grade of C or better, as required. I encourage you to work in groups to discuss problems and to compare solutions, but ………… you must understand the solutions and you must document them in your own handwriting. Remember that Exams are solved 100% individually in your own handwriting. Matlab assignments are included mostly as a means to complement the theory, which is often rather abstract.

• Read the book: The reading assignment is given in detail with each homework document. Do a first pass, overview before coming to class and then read carefully before attempting the homework problems. Look at the end of each chapter for self-test problems and the solutions starting on page 461 of the 8th Edition.

EFFORT, PARTICIPATION and ETIQUETTE:

- Students (domestic or international, no exceptions) that are clearly not doing the homeworks, are failing quizzes, and who fail Exam 1 will be dropped from the course unless there are extenuating circumstances (let's discuss it).
- Come to class and show up on time. Habitual late comers may not be allowed in class without a justification.
- Leaving early is considered disruptive and unprofessional, it should be kept to a minimum.   Inform the instructor ahead of time if you must leave early and sit near the door to minimize disruptions.
- Ask questions of broad interest, your fellow students will also benefit.
- Bring your book to class.
- Turn down the sound on cell phones, beepers, i-pods, etc. during the class period.
- The use of cellular phones during exams and quizzes is strictly prohibited, put them away and out of reach.
- Do not bring *__smelly food__* into the classroom unless you are willing to share with me and everyone else that will suddenly become hungry! Eating other things during class should be done very quietly and as a last resort.

ACADEMIC INTEGRITY

Please review the statements below and UTEP's Web page on Policy on Academic Integrity at:
http://sa.utep.edu/osccr/academic-integrity/

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another person's as ones' own. And, collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Violations will be taken seriously and will be referred to the Dean of Students Office for possible disciplinary action. Students may be suspended or expelled from UTEP for such actions.
Academic dishonesty is an assault upon the basic integrity and meaning of a University. Cheating, plagiarism, and collusion in dishonest activities are serious acts which erode the University's educational and research roles and cheapen the learning experience not only for the perpetrators, but also for the entire community. It is expected that UTEP students will understand and subscribe to the ideal of academic integrity and that they will be willing to bear individual responsibility for their work. Materials (written or otherwise) submitted to fulfill academic requirements must represent a student's own efforts. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Violations will be referred to the Dean of Students Office for possible disciplinary action. Students may be suspended or expelled from UTEP for such actions