UNIVERSITY OF TEXAS AT EL PASO  
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

SPRING 2019 SYLLABUS  
EE3384: PROBABILISTIC METHODS IN ENGINEERING AND SCIENCE (21268)

INSTRUCTOR: Yuxin Wen, Ph.D. Candidate  
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OFFICE HOURS: Monday: 10:00AM-12:00 PM (Location: E113)

CLASS TIME, PLACE: TR 13:30 PM – 14:50 PM, BUSN 331

REQUIRED TEXTBOOK:  
The 8th Edition is also acceptable.

ENTRY IN COURSE SCHEDULE AND CATALOG DESCRIPTION:  
Course Information: Probabilistic Methods-Engr/Sci - EE 3384 - 001 CRN: 21268

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 Systems) each with a grade of “C” or better.

COURSE GRADING:  
Three In-class Semester Exams: 45 %  
Homework 15 %  
Quizzes 15 %  
Final Exam 25 %  
TOTAL 100 %

KEY DATES:  
Exam 1 tentative date: February 21 (Thursday)  
Exam 2 tentative date: March 26 (Tuesday)  
Exam 3 tentative date: April 30 (Tuesday)  
Final Exam Period: May 13-17

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:  
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.

Outline:

I. Chapter 1, Sections 1.1 - 1.4 – 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– Random Variables (discrete)
V. Chapter 5, Sections 5.1-5.7 – Continuous Random Variables
VI. Chapter 6, Sections 6.1-6.3, 6.5 – Jointly Distributed Random Variables
VII. Chapter 7, Sections 7.1-7.8 – Properties of Expectation
VIII. Chapter 8, Sections 8.1-8.4– Limit Theorems

COURSE POLICIES

Attendance Policy
Attendance is required and is assumed and expected. Students missing more than two lectures should seriously reflect on their commitment to this course, as missing classes is highly correlated with poor performance. Students absent from lecture are still held responsible for all information discussed, homework assigned, and exams administered during that missed lecture. Ask your classmates about material covered and handouts on a lecture you miss. In some special cases, absence can be forgiven if coordinated with the course instructor well before the lecture is missed. Also, you are required to attend classes to receive financial assistance from the university and faculty has to notify about students lack of attendance when reporting failing grades.

Exam Policy
Exams during the semester will be given in class. No exam will be given earlier than scheduled. Duration of the exams will be strictly limited to the duration of the class. The first three exams will be mostly focused on the material covered since the last exam. The final exam will be comprehensive. A missed exam can be made-up ONLY IF: (1) the reason for missing the exam is beyond the student’s control, e.g. such as a medical excuse, jury duty, death in the family or automobile accident, or (2) prior consent must be obtained from the instructor for missing the exam based on a non-frivolous excuse, e.g. such as a job interview or out-of-town job related travel. In either case, the student must submit a written and signed statement
describing the reasons for missing the exam, with appropriate documentation, and petition for a makeup exam. A missed exam will carry zero grade if these conditions are not met.

**Homework Policy**
Homework will be assigned on a bi-weekly basis. Show all work! Homework is due by midnight on the assigned due date. In order to provide solutions in a timely manner, no homework assignments will be accepted after three days following the due date and 10 points will be deducted for every day late. Homework must be completed with a high level of professionalism and be formatted properly. Points will be deducted for sloppy work, incorrect formatting, or if not all of the work is shown.

**Quiz Policy**
There is no make-up chances for Quizzes.

**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 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. You cannot enter the classroom 10 minutes after the class started.
- 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.
- Cell phones, beepers, etc. should be in vibrate mode 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.

**CENTER FOR ACCOMMODATIONS AND SUPPORT SERVICES (CASS):**
If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

**CIVILITY:**
We expect course business to be conducted in a civil manner. Disrespectful behavior towards the instructor or classmates is not acceptable. Any uncivil behavior in class will be subject to disciplinary actions per UTEP policy.