Instructor
John Stensby (stensby@eng.uah.edu), EB 217I, Office Hours: Tue, Thurs. 4-5 PM and Fri 8-10 AM or by appointment.

Course Material
2. Course notes downloaded and printed from http://www.ece.uah.edu/courses/ee385/

Prerequisite
EE385 or equivalent. Please review the first eight chapters of the online notes. Pay close attention to Gaussian random variables, Gaussian random processes, Poisson random points and Poisson processes.

Many EE603 graduate students have not had EE385 or its equivalent. For ECE program accreditation, ABET requires only a basic probability and statistic course, nothing comparable to EE385. Hence, many/most ECE undergraduate programs do not require/offer a course like EE385. For this reason, during the first two weeks (approximately) an extensive review will be given of material from EE385.

Course Outline
For the most part, I will follow my class notes, starting at Chapter 9. Topics to be covered include those listed below.
1. An extensive review of probability and random process (Ch 1 - 8 of EE385 notes)
2. Narrow band Gaussian Noise (Ch. 9 of class notes and Section 10.6 & ex 3.3-12 of Text)
3. Shot Noise (Ch. 9 of class notes).
4. Thermal Noise and System Noise Figure (Ch. 10 of class notes)
5. Sequences of Random Variables (Ch. 11 of class notes, Ch 8 of Text)

Most semesters, this is as far as I get. However, if time allows, I will continue on with:
6. Mean-Square Calculus (Ch. 12 of class notes, Section 10.1-10.3 of Text)
7. Orthogonal expansions of random processes and applications to detection/match filtering theory (Ch. 13 class notes, Section 10.5 & 10.6 of Text)
8. Markov and Diffusion Processes (Ch. 14 class notes, Ch. 9 of Text)

Grading
Major Exams (2) 50%
Homework 20%
Final Exam 30%

Notes
1. The main goal of this course is to provide the student with fundamentals that are necessary for advanced study in communication systems, signal processing, radar/sonar, control systems and other areas where random data/fluctuations must be considered/analyzed.
2. Homework will be assigned almost every week. Homework solutions will be posted on the bulletin board outside of Room 217 of the Engineering Building.
3. Please observe my posted office hours. If they are not convenient then please make an
appointment to see me.

5. All in-class exams will be open notes/book.

6. Please update your e-mail address on Banner. Course material will be sent to your current e-mail address.

7. The University of Alabama in Huntsville will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Disability Support Services Office (256.824.6203 or 136 Madison Hall) and their instructor as soon as possible to coordinate accommodations. A Disability Accommodation statement is placed on course syllabi to indicate the university's willingness to provide reasonable accommodations to a student with a disability, as required by federal law.

References
   Hsu’s outline is highly recommended. He covers many course topics, and he provides many worked example problems.

   A great text on the subject matter. Must be seen/read to be fully appreciated!!

   This is a good general reference book

   This text has a lot of good stuff on convergence of random sequences and mean square calculus (plus, it is a good text for Kalman and nonlinear filtering theory).

   Soong has great coverage of convergence concepts and mean square calculus.


   An excellent (and easy to read) text for engineers and scientists who need some advanced theory

   A very readable introduction to probability theory from a measure-theoretic standpoint.

   These two books provide a terse but comprehensive coverage of probability and random processes for the advanced reader (with a working knowledge of measure theory).

10. Google. Online searches can produce amazing results!!