

ECE 313 lectures, Fall 2012

Tentative schedule for ECE 313 Fall 2012 8/22/12

Basically the lectures and problem sets follow the notes in order, about 12-15 pages per week.

1. Axioms of probability and calculating the sizes of sets
Due: Wednesday, September 5 Reading: *ECE 313 Notes* Chapter 1
2. Discrete random variables
Due: Wednesday, September 12 Reading: *ECE 313 Notes* Chapter 1, Sections 2.1-2.2 (note: most of Chapter 1 was also in the reading for PS1. It's also important for this problem set.)
3. Conditional probability, independence, and the binomial distribution
(The part on conditional probabilities here is only a first pass. The law of total probability and Bayes' formula are delayed until problem set 5.)
Due: Wednesday, September 19 Reading: *ECE 313 Notes* Sections 2.3-2.4
4. Geometric and Poisson distributions, Bernoulli processes, ML parameter estimation and confidence intervals
Due: Wednesday, September 26 Reading: *ECE 313 Notes* Sections 2.5-2.9
5. Bayes' formula and binary hypothesis testing
Due: Wednesday, October 3 Reading: *ECE 313 Notes* Sections 2.10 & 2.11
Exam 1 on Monday, October 8, covers problem sets 1-5. Note that problem set 6 is due two days later. It will be a little shorter than average.
6. Reliability and CDFs
Due: Wednesday, October 10 Reading: *ECE 313 Notes* Sections 2.12 & 3.1
7. Continuous type random variables and Poisson processes
Due: Wednesday, October 17 Reading: *ECE 313 Notes* Sections 3.2-3.5

8. Linear scaling, Gaussian distribution, ML parameter estimation
Due: Wednesday, October 24 Reading: *ECE 313 Notes* Sections 3.6-3.7
9. Functions of a random variable, failure rate functions, and hypothesis testing for continuous-type observations
(Also includes binary hypothesis testing for continuous-type observations.
Due: Wednesday, October 31 Reading: *ECE 313 Notes* Sections 3.8-3.10
10. Jointly distributed random variables including independent random variables
Due: Wednesday, November 7 Reading: *ECE 313 Notes* Sections 4.1-4.4
Exam 2 on Monday, November 12, covers problem sets 6-10. Note that there is no problem set due this week, and the following week is Thanksgiving break. That is, three weeks are given for problem set 11.
11. Working with joint densities
(Note: Section 4.7 is covered very lightly, and will not be on the final exam. Perhaps one homework problem using it would be assigned.) Due: Wednesday, November 28 Reading: *ECE 313 Notes* Sections 4.5-4.7
12. Moments of jointly distributed random variables, minimum mean square error estimation
Due: Wednesday, December 5 Reading: *ECE 313 Notes* Sections 4.8-4.9
13. LLN, CLT, and joint Gaussian distribution
Due: Wednesday, December 12 Reading: *ECE 313 Notes* Sections 4.10-4.11