

**ECE303: Introduction to Communications Principles**

3 credits

Brief Description: Probability and statistics in the context of electrical engineering applications

Location: TR 9:30pm-10:45pm, Wagar 133

Prerequisites: MATH261 and (concurrent) ECE311

Course Webpage: ramct.colostate.edu

**Instructor:**

**Prof. Diego Krapf**

Contact Info: Scott 318, Tel. 970-491-4255, krapf@enr.colostate.edu

Office Hours: Wednesday 10:30–11:30pm

Extra Problem Sessions: Organized upon request

Grader: Arindam Batabyal

**Calendar:**

Aug. 26 First day of class

Oct. 2 Midterm 1

Nov. 13 Midterm 2

Nov. 22-30 Fall Recess

Dec. 11 Last day of class

Dec. 15, 11:50-1:50 pm Final Exam

**Textbook:**

Roy D. Yates and David G. Goodman, *Probability and Stochastic Processes: A Friendly Introduction for Electrical and Computer Engineers*, 3<sup>rd</sup> Edition, Wiley.

*It is OK to use the 2<sup>nd</sup> Edition as a textbook for the course.*

**References:**

D. P. Bertsekas and J. N. Tsitsiklias, *Introduction to Probability*, Athena Scientific, Belmont, MA, 2002.

P. Peebles, *Probability, Random Variables, and Random Signal Principles*, 4th Edition, McGraw-Hill, New York, 2000.

**Homeworks:**

Homework assignments will be posted on RamCT once a week. Each assignment will be due at the start of the class meeting a week from the assignment date. I plan for there to be a new assignment every week.

Your first and last name, homework number, and course number must be written in the first page.

Your homework must be stapled, and your solutions to the problems must be in the correct order. Your solutions must be clear and you must include how you reach your results. Writing only the final solution is not acceptable.

Homework turned in after the due date without prior approval from the instructor or not complying with these guidelines will not receive credit.

**Exams:**

Final exam is closed book, but you are allowed to bring one hand-written sheet of notes (front and back). You should bring to the exams enough blank paper to solve the problems, a calculator, and your handwritten note sheet. The use of cell phone, smart phone, or computer is not allowed.

**Course Outline:**

1. Experiments, Models, and Probabilities
2. Discrete Random Variables
3. Continuous Random Variables
4. Pairs of Random Variables
5. Random Vectors
6. Sums of Random Variables
7. Random Samples and Averaging
8. Random Processes (if time permits)

**Applications of this course:**

The topics covered are applicable in all of the following areas

- Signal and Image Processing
- Optics
- Biomedical Engineering
- Control and Robotics
- Electronics and Solid-State Engineering
- Finance
- Reliability and Operations Research

**Grading:**

- 20% Homework
- 25% Midterm 1
- 25% Midterm 2
- 30% Final exam

**Note:** Regular attendance in class is required.

**Academic Integrity**

The course will adhere to the Academic Integrity Policy of the CSU General Catalog (page 7, <http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf>) and the Student Conduct Code (<http://www.conflictresolution.colostate.edu/conduct-code>).