

ECE303: Introduction to Communications Principles

3 credits

Brief Description: Probability and Statistics, in the Context of Communication and Signal Processing

Time & Location: TR 4:00pm-5:15pm, Glover 201

Prerequisites: MATH261 and (concurrent) ECE311

Course Webpage: ramct.colostate.edu

Instructor:

Prof. Diego Krapf

Contact Info: Engr C101G or ERC A111, Tel. 970-491-4255, krapf@engr.colostate.edu

Office Hours: Tuesday 3:00–4:00pm

Extra Problem Sessions: Organized upon request

Grader: Pushpaak Ramesh, pushpaak.ramesh@colostate.edu

Calendar:

Aug. 21	First day of class
Sep. 27	Midterm 1
Nov. 8	Midterm 2
Nov. 17-25	Fall Recess
Dec. 6	Last day of class
Dec. 11, 6:20-8:20 pm	Final Exam

Exams and Grading:

Homework	20%
Midterm 1	25%
Midterm 2	25%
Final Exam	30%

Note: Regular attendance in class is required. Homework are assigned every week and are due at the start of the class a week from the assignment date. Homework turned in after the due date will not receive credit.

Textbook:

Roy D. Yates and David G. Goodman, *Probability and Stochastic Processes: A Friendly Introduction for Electrical and Computer Engineers*, 2nd Edition, Wiley, 2005.

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.

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: Emphasis is on communication, but the topics covered are applicable in all of the following areas as well:

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

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>).