

CSE 4102: Mathematical and Statistical Analysis for Engineers

Course Outline (tentative)

- Introduction to statistics, Methods for describing data: Frequency distributions and graphic presentation [2 classes]
- A survey of probability concepts, Continuous and discrete probability distributions [2-3 classes]
- Continuous and discrete probability distributions [2 classes]
- Sampling methods and central limit theorem [2 classes]
- Estimation and confidence intervals [2 classes]
- One sample tests of hypothesis, two sample tests of hypothesis [2 classes]
- Correlation and linear regression [2 classes]
- Multiple linear regression [1 class]
- Non-parametric methods [2 classes]
- Linear Programming [1-2 classes]
- Simplex Algorithm and Goal Programming [2 classes]
- Integer Linear Programming [2 classes]
- Orthogonal Functions, Fourier Series and Fourier Transform [3 classes]

Textbooks:

- Textbook for Stat part: Elementary Statistics, Mario F. Triola (11th Ed.), Addison-Wesley.
- Textbook for Linear Programming: Operations Research: Applications and Algorithms, W.L. Winston, Duxbury Press.
- Textbook for Math Part: Advanced Engineering Mathematics, D. Zill, W. Wright, 5th Ed., Jones & Bartlett Learning.