

MATH 7580 Computational Statistics

Spring 2012

Time: 6:00-7:15 pm TR
Classroom: 224 Math Sci Bldg.
Instructor: Dr. Maria Rizzo
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Required textbook: *Statistical Computing with R*, Maria L. Rizzo, Chapman and Hall/CRC 2008. ISBN: 9781584885450, ISBN 10: 1584885459.

Topics: Computational Statistics

- Random variable generation
- Graphics and visualization of multivariate data
- Monte Carlo integration
- Monte Carlo methods in statistical inference
- Bootstrap, Jackknife
- Cross-validation, Permutation and Randomization methods
- Density Estimation
- Nonparametric Regression and Smoothing
- Markov Chain Monte Carlo Methods
- Numerical methods for statistics
- Optimization

Required software: R (free to download from www.r-project.org).

Resources: See the instructor web page.

Midterm Project:	50 points
Midterm Exam:	50 points
Assignments:	100 points
Final Project	100 points

The course grade will be determined by the percentage of total points earned: 90%-100% A, 80%-89% B, 70%-79% C, 60%-69% D, <60% F.