MATH 7685-8685: Simulation and Statistical Computing
Fall, 2018
MW 12:40pm-2:05pm (DH 203)
Lih-Yuan Deng (DH219, 678-3134)
Department of Mathematical Sciences
The University of Memphis

Office Hours:

MW 10am-11:30am or by appointment

Contact Information:

(O) 901-678-3134, email: `lihdeng@memphis.edu`.

Course Contents:

1. Introduction
2. R and High-Performance Computing
3. The Discrepancy between Pencil-Driven Theory and Data-Driven Computational Solutions
4. Simulation of Random Numbers
5. Monte Carlo Methods for Optimization Problems
6. Probability Theory Shown by Simulation
7. Resampling Methods
8. Applications of Resampling Methods and Monte Carlo Tests
9. The EM Algorithm
10. Simulation with Complex Data

Textbook Used:

Simulation for Data Science with R, by Matthias Templ, Publisher: Packt Publishing, ISBN-13: 978-1785881169, ISBN-10: 1785881167

Software Used:

R will be the major program used symbolic program such as MAPLE/Mathematica/Sage is recommended for this course.

Grading:

Midterm exam or Class Project	25%
Homework (program or written)	20%
Class Participation	15%
Final Exam (Project)	40%