Modeling and Simulation
Fall 2020, Tuesdays 9:30-11:30
Ted Brown

Rational: Analytic modeling and its counterpart simulation are important tools in analyzing systems and an active area of research.

Course Description: The course will concentrate on stochastic systems using both analytic techniques and discrete event simulation techniques, exemplified by modeling of networks of queues .

Learning Goals:
Students are expected to learn concepts of computer modeling and simulation applicable to a wide variety of technological, natural, and social systems, provide hands-on experience with modeling and simulation and specifically simulation of discrete event models. By the end of the class, students will have established a sound foundation of computer modeling and simulation,learning a set of computer-based tools for constructing, simulating and analyzing dynamic models of complex systems.

Assessment:
There will be three writing or programming assignments 30%, a final presentation 30%, students are expected to participate in discussions 20%, midterm 20%

Background:
All students must have a background in probability, statistics and data structures They must also be able to program in a high level language. All of these areas play an important role in this course.

Required texts:
Discrete-Event simulation: a first course; Leemis and Park, Pearson Prentice Hall, 2003

Probability & Statistics with reliability, queueing and computer science applications, Trivedi,Prentice-Hall, 2016 downloadable on wiley online through gc library

Mathematics for Computer Science, Lehman,Leighton,Meyer, online at
https://courses.csail.mit.edu/6.042/spring17/mcs.pdf

Moshe Haviv, Queues, downloadable at
https://link.springer.com/book/10.1007/978-1-4614-6765-6
Queues, a course in queuing theory, Springer, 2013
        downloadable at
https://link.springer.com/content/pdf/10.1007/978-1-4614-6765-6.pdf

https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-042j-mathematics-for-computer-science-fall-2010/

Subject to change.
The course will follow CUNY's policy on academic dishonesty.