CS 4830 / 6830
System Simulation
Fall 2022

Instructor:	Dr. M. M. Rizki
Office Hours:	Monday/Wednesday 1:30-2:30 and by appointment
	Questions will also be addressed via email
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Textbooks:

Simulation Modeling and Analysis (5th Edition)
by Averill Law, McGraw-Hill, 2015

Earlier (3rd and 4th) editions of the textbook (Simulation Modeling and Analysis by Kelton and Law) are almost identical to the 5th edition and acceptable substitutions. These editions are available online at a fraction of the cost of the 5th edition.

Course Requirements:

Simulation Exercises (3 @ 15%)	45%
Final Project	25%
Examinations (2 @ 15%)	30%

General Policies:

1. Projects are due at the time posted in Pilot. Assignments not submitted by the due date will be accepted up to one week late at a penalty of 25%. The final project must be submitted on the due date -- no late final projects will be accepted.

2. Projects will be graded based on (1) quality of the simulation analysis, (2) correctness of the results, and (3) quality and readability of the code. Code that does not compile or produces serious run time errors will receive a grade of zero.

3. Homework may be assigned periodically. It will not be graded, but similar problems will appear on your examinations so it is to your advantage to attempt each homework problem.

4. Students registering for CS 6830 will be asked to perform additional work on each assignment. As always, graduate students are expected to produce superior quality work!

5. Questions, discussion, and debate are strongly encouraged.

Course Outline:

1.	Basic Simulation Concepts	L&K	1.1-1.4, 1.7-1.9
	Simulation Methodologies	L&K	2.1-2.4, 2.8
2.	Introduction to Python and SimPy		https://simpy.readthedocs.io/en/latest/
3.	Building Valid Simulations	L&K	5
4.	Probabilistic Aspects of Simulation		
	Review of Probability	L&K	4
	Random Number Generators	L&K	7
	Random Variates	L&K	8.1, 8.2, 8.3.1-8, 8.3.15-16, 8.4-8.6
5.	Statistical Aspects of Simulation		
	Selecting Input Distributions	L&K	6
	Analysis of Output	L&K	9
6.	Comparing Alternative Configurations	L&K	10
7.	Variance Reduction Techniques	L&K	11
8.	Experimental Design	L&K	12
9.	Simulation Software	L&K	3