Course Addendum

Semester**:   Winter 2023**   Subject Code: **BDA450**   Section**: NAA**
Subject Title: **Simulation and Modelling**
Professor: **Reid Kerr**   Office**: A3058**
E-mail: **reid.kerr@senecacollege.ca**   Phone: **416-764-9411**
Office Hours**: Tuesday 12:30-1:30; Other times (online; please contact to schedule)**

Approved by: _____

Kathy Dumanski, Chair, School of Software Design and Data Science

Please read this addendum to the general course outline carefully. It is your guide to the course requirements and activities.

Please refer to the course outline for learning outcomes, course description and text and materials.

Please also visit sdds.senecacollege.ca for key information on courses, graduation requirements, transfer credit, and more from the School of Software Design and Data Science.

Assessment Summary

Assignments (3) - Individual	30%
Labs – Hands-on activities most weeks	20%
Midterm Exam	20%
Project – Group	30%

Course Policies
- Late or missed evaluations will receive a mark of zero. Alternate arrangements will only be made in the case of significant, documented extenuating circumstances.
- Readings should be completed before class.
- Students are responsible for both material covered in class, as well as material in the assigned readings.

Academic Policies:
http://www.senecacollege.ca/about/policies/academics-and-student-services.html

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Course Expectations

Readings come from:
- **The primary textbook: Simulation Modeling and Analysis (Fifth Edition), Averill M. Law, McGraw Hill, 2015, ISBN 978-0-07-340132-4**
  - This is a leading textbook on this field, and is available from a number of sources. Reasonably-priced electronic access is available through VitalSource: https://www.vitalsource.com/en-ca/products/simulation-modeling-and-analysis-averill-law-v0077595963
- **An additional required text: Introductions to the Modeling and Analysis of Complex Systems, Hiroki Sayama, Open SUNY Textbooks, 2015.**
  - We will only use one chapter of this book. It is **freely available** at https://milneopentextbooks.org/introduction-to-the-modeling-and-analysis-of-complex-systems/
- Other sources as provided.

Week	Topics	Reading* (Chapters/sections from the primary textbook, except where noted)	Lab	Assessments
Week 1	Introduction Models and Simulation	1.1-1.2; 1.7-1.8; Supplement	Simple Monte Carlo	
Week 2	Discrete Time	Sayama 4.1-4.3	Simple time series	
Week 3	Discrete Time (Continued)	Sayama 4.4-4.6	Discrete time simulation	Assignment 1 posted (10%)
Week 4	Discrete Event	1.3-1.4; 2.2; 2.8	SimPy setup	Project posted (30%)

Week 5	Discrete Event (Continued)	1.4; 2.5-2.6; SimPy Supplement	Discrete event simulation	Assignment 1 due (10%); Assignment 2 posted (10%)
Week 6	Agents	13.1-13.2; https://link.springer.com/article/10.1057/jos.2010.3	Agent behaviour	
Week 7				Midterm (20%); Assignment 2 due (10%)
	STUDY WEEK			
Week 8	Review of Statistics	4.2; 4.4-4.6	Statistical summary/ interpretation	Project check-in
Week 9	Input Distributions	6.1-6.7; 6.11	Distribution selection	
Week 10	Verification/ Validation/ Calibration	5.1-5.4; 5.6	Calibration	Assignment 3 posted (10%)
Week 11	Output	9.1-9.5	Output interpretation	
Week 12	System Requirements	1.6; 3.1-3.5	Requirements research	Assignment 3 due (10%)
Week 13	Project			

Week 14	Project			Project Due (30%)

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