STEVENS
INSTITUTE of TECHNOLOGY
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Course Overview

SYS-611: Simulation and Modeling

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School of Systems and Enterprises

Course Information

- Meetings: Thursdays, 6:15 – 8:45pm
  Carnegie 316 / Blackboard Collab.
- Instructor: Prof. Paul Grogan
  Babbio Center 517
  pgrogan@stevens.edu
- Office Hours: Tuesdays 2:00 – 4:00pm
  Online: Tuesdays 6:00 – 7:00pm
- Course Site: Canvas
- Prerequisites: None

Learning Objectives

1. Understand the **technical underpinning** of modern computer simulation software.
2. Apply appropriate **analytical techniques** to a wide variety of real-world problems and data.
3. Apply **modern software packages** to conduct analysis of real-world data.
4. Summarize and **present analysis results** in a clear and coherent manner.

Format and Structure

- Lectures: mandatory for SYS-611-A (campus)
- Participation: 12 weekly discussion questions due Wednesdays at 11:59pm
- Homework: 9 quasi-weekly assignments collaboration allowed due Wednesdays at 11:59pm
- Exams: midterm in class on **October 25** fundamental concepts, no computer
- Project: apply simulation to a topic of own interest (pairs) due in exam period

Course Materials

- Recommended textbooks:
  - Farr, J.V. (2007). *Simulation of Complex Systems and Enterprises*, Stevens Institute of Technology.
  - Ross, S.M. (2013). *Simulation*, 5th Edition, Elsevier. ISBN: 978-0-12-415825-2.
- Other readings will be posted on the course website
- Materials: will require a computer with:
  - Python 2.7 (Anaconda suite recommended)
  - NetLogo 6.0.4

Grading

Item	Total Points	% Final Grade
Homework (8)*	200	33.3
Exam	150	25.0
Project	200	33.3
Participation (10)**	50	8.3
Total	600	100.0

* Drop 1 lowest score

** Drop 2 lowest scores

Points	Percent	Grade
540 - 600	90.0 - 100.0	A
510 - 539	85.0 - 89.9	A-
480 - 509	80.0 - 84.9	B+
450 - 479	75.0 - 79.9	B
420 - 449	70.0 - 74.9	B-
390 - 419	65.0 - 69.9	C+
360 - 389	60.0 - 64.9	C
< 360	< 60.0	F

Academic Integrity

- All students must complete their own work
  - Allowed to work collaboratively on homework
  - List all collaborators on homework cover sheet
- Directly copying code, script, programs, models, or answers from others will **not be tolerated** and will result in a **zero** for the assignment and **referral** to the Honor Board or Office of Graduate Academics
  - Academic misconduct on an exam virtually eliminates the possibility of obtaining a B or higher course grade

Tentative Course Schedule

Date	Topic(s)	
Aug. 30	Overview and Introduction	
Sep. 6	Modeling Tools	HW1
Sep. 13	Review of Probability	HW2
Sep. 20	Stochastic Simulation	HW3
Sep. 27	Dynamic Simulation	HW4
Oct. 4	Dynamic Probability Models	HW5
Oct. 11	Discrete Event Models	HW6
Oct. 18	Exam Review	
Oct. 25	Exam (In Class)	

Date	Topic(s)	
Nov. 1	Simulation in Practice	HW7
Nov. 8	*Special Project Session*	
Nov. 15	Discrete Event Simulation	HW8
Nov. 29	Agent-based Simulation	HW9
Dec. 6	Advanced Topics in Systems Simulation	
TBD	Project Due	

Prof. Grogan is away on Nov. 8,
will arrange alternative lecture time/format

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Questions?