Computer Simulations in Philosophy, Politics and Economics

Instructor:	Eric Pacuit (pacuit.org)
Semester:	Spring 2021
Email:	epacuit@umd.edu
Course Website:	https://umd.instructure.com/courses/1301051
	https://ppe-simulations.pacuit.org
Office Hours:	Fridays 10am - noon
Class Times:	MW 2:00pm - 3:15pm
Class Location:	Online

1 Course Description

Computer simulations have been used for almost as long as there have been computers. The earliest scientific use of computer simulations were for physics and engineering. Will this bridge hold up to strong winds? What is happening inside of a nuclear explosion? Increasingly people are also employing computer simulation for use in understanding social behavior both in humans and other animals. How can cooperative institutions form out of the "state of nature"? How can groups of scientists come to know so much about nature? In the last sixty years, researchers have use mathematical and computer models to answer such questions. This class is about the nuts and bolts of computer simulation of social behavior and about the underlying theory behind this work. The course also discusses the philosophical issues that arise when evaluating the use of mathematical models in economics and philosophy.

Course Objective

By the end of this class, you will be able to write your own computer simulation of social behavior using Python. In addition, you will be able to describe both the structure and results of your simulation.

Also by the end of this course, you should be able to think critically about simulations designed by others. You should be able to have developed thoughts about the appropriateness of a simulation for a given purpose.

Readings

We will read a number of research papers and chapters from books throughout the semester. The papers and chapters will be provided on ELMS. Online notes for the course can be found at:

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https://ppe-simulations.pacuit.org
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Communication about this Course

All announcements (e.g., changes to the schedule, hints about the assignments or quizzes) about the course will be posted on the ELMS announcement page.

https://umd.instructure.com/courses/1301051/announcements

Please make sure that you check this page regularly and/or receive the email notifications from ELMS when the page is updated.

Grading Policy

Your grade will be calculated as follows:

- Participation: 20%

- Problem Sets: 30%

- Final Project: 40%

- Final Presentation: 10%

I will grade on a curve (this means that, for example, a final average of 90% may turn out to be an A rather than an A−). See the undergraduate catalogue for the official description of grades, e.g., A+, A, A-, etc.: http://www.umd.edu/catalog/index.cfm/show/content.section/c/27/ss/1584/s/1534.

Project

Over the semester, you will develop a computer simulation of social behavior on a topic of your choice. Along the way you will write a midterm report on the project and give a class presentation to get feedback from us. You will need to write a final report and do a final presentation for the class (this will be done during the scheduled final exam).

Problem Sets

There will be a number of short questions/problem sets assigned throughout the semester. These will include short answers and some programming assignments.

Course Policies

A full list of course-related policies and relevant links to resources may be found at:

`http://www.ugst.umd.edu/courserelatedpolicies.html`.

Accessibility and Disability Services The University of Maryland is committed to creating and maintaining a welcoming and inclusive educational, working, and living environment for people of all abilities. The University of Maryland is also committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of the University, or be subjected to discrimination. The Accessibility & Disability Service (ADS) (https://www.counseling.umd.edu/ads/) provides reasonable accommodations to qualified individuals to provide equal access to services, programs and activities. ADS cannot assist retroactively, so it is generally best to request accommodations several weeks before the semester begins or as soon as a disability becomes known.

For assistance in obtaining an accommodation, contact Accessibility and Disability Service at 301-314-7682, or email them at adsfrontdesk@umd.edu. See also:

- Information about sharing your accommodations with instructors (https://www.counseling.umd.edu/ads/accommodations/sharingwithinstructors/)

Student Resources and Services

- Note taking assistance (https://www.counseling.umd.edu/ads/notetaking/)

- Counseling Center (https://www.counseling.umd.edu/)

- UMD's Student Academic Support Services website (http://tutoring.umd.edu/)

- UMD's Writing Center (http://www.english.umd.edu/academics/writingcenter/schedule)

- UMD's Student Resources and Services website (https://sph.umd.edu/content/student-resources-and-services)

- UMD's Counseling Center or one of the many other mental health resources on campus. (https://tltc.umd.edu/supporting-whole-student)

- Basic Needs Security (https://studentaffairs.umd.edu/basic-needs-security)

Communication about this Course I will use ELMS announcements to convey important information, and students are responsible for keeping their email address up to date, and must ensure that forwarding to another address functions properly. Failure to check email, errors in forwarding, and returned email are the responsibility of the student, and do not constitute an excuse for missing announcements or deadlines.

Names/Pronouns and Self-Identifications   The University of Maryland recognizes the importance of a diverse student body, and we are committed to fostering inclusive and equitable classroom environments. I invite you, if you wish, to tell us how you want to be referred to both in terms of your name and your pronouns (he/him, she/her, they/them, etc.). The pronouns someone indicates are not necessarily indicative of their gender identity. Visit trans.umd.edu to learn more.

Additionally, how you identify in terms of your gender, race, class, sexuality, religion, and dis/ability, among all aspects of your identity, is your choice whether to disclose (e.g., should it come up in classroom conversation about our experiences and perspectives) and should be self-identified, not presumed or imposed. I will do my best to address and refer to all students accordingly, and I ask you to do the same for all of your fellow Terps.

Class Cancelations   The University may be closed in the event of an emergency, in which case class will be cancelled. To find out if the University is closed you can check its main site (`http://www.umd.edu`), its emergency preparedness site (`http://www.umd.edu/emergencypreparedness/`), or call the "snow phone line" at 301-405-7669 (which covers more than just snow caused closings). If class is cancelled while the University remains open, then there will be an announcement posted on the course ELMS page.

Emergency protocol: In the case of an extended closure to the University (e.g., because of inclement weather), consult the ELMS course page for announcements and changes to any due dates.

Attendance and Absences   Students are expected to attend classes regularly. Consistent attendance offers students the most effective opportunity to gain command of course concepts and materials. Events that justify an excused absence include: religious observances; mandatory military obligation; illness of the student or illness of an immediate family member; participation in university activities at the request of university authorities; and compelling circumstances beyond the student's control (e.g., death in the family, required court appearance). Absences stemming from work duties other than military obligation (e.g., unexpected changes in shift assignments) and traffic/transit problems do not typically qualify for excused absence. Students claiming an excused absence must notify the course instructor in a timely manner and provide appropriate documentation. The notification should be provided either prior to the absence or as soon afterwards as possible. In the case of religious observances, athletic events, and planned absences known at the beginning of the semester, the student must inform the instructor during the schedule adjustment period. All other absences must be reported as soon as is practical. The student must provide appropriate documentation of the absence. The documentation must be provided in writing to the instructor by the means specified in this syllabus. The full university attendance/absence policy can be found here: `http://www.ugst.umd.edu/courserelatedpolicies.html`.

Academic Integrity   The UMD Honor Code prohibits students from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents and forging signatures. On every examination, paper or other academic exercise not exempted by the instructor, students must write by hand and sign the following pledge:

I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment).

Allegations of academic dishonesty will be reported directly to the Student Honor Council: `http://www.shc.umd.edu`

Copyright Notice Class lectures and other materials are copyrighted. They are the property of the instructor - do not sell them, do not post them on a website. They may not be reproduced for anything other than personal use without written permission from the instructor. Copyright infringements may be referred to the Office of Student Conduct.

Academic Accommodations for Students who Experience Sexual Misconduct The University of Maryland is committed to providing support and resources, including academic accommodations, for students who experience sexual or relationship violence as defined by the University's Sexual Misconduct Policy. To report an incident and/or obtain an academic accommodation, contact the Office of Civil Rights and Sexual Misconduct at 301-405-1142. If you wish to speak confidentially, contact Campus Advocates Respond and Educate (CARE) to Stop Violence at 301-741-3555. As 'responsible university employees' faculty are required to report any disclosure of sexual misconduct, i.e., they may not hold such disclosures in confidence. For more information: `http://www.umd.edu/ocrsm/`

Diversity The University of Maryland values the diversity of its student body. Along with the University, I am committed to providing a classroom atmosphere that encourages the equitable participation of all students regardless of age, disability, ethnicity, gender, national origin, race, religion, or sexual orientation. Potential devaluation of students in the classroom that can occur by reference to demeaning stereotypes of any group and/or overlooking the contributions of a particular group to the topic under discussion is inappropriate.

For information on elms, counseling, health, learning workshops, tutoring, writing help, student rights in undergrad courses, questions about graduation or add/drop/withdraw, please see `http://www.ugst.umd.edu/courserelatedpolicies.html`.