

Short Term Plan

Simulation & Modeling

[simulation: focus on parallel simulation execution]
 [modeling: focus on financial & animals (agents) models]

Course Overview



Maria Hybinette, UGA

1

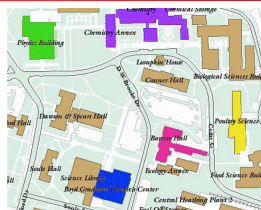
- Today go over expectations and course plan
 - » Short class today
- Tuesday/Thursday: **Simulation Introduction**
- Paper summary discussion
- Movie (50 minutes) Financial Market
- First Project: Financial market simulator in Python
 - » Python crash tutorial
 - » Financial Analyzer of Stock market
 - » Project Build a Market Simulator

Maria Hybinette, UGA

2

Administration / Logistics

- Who am I?
 - » Office: Boyd 219C
- maria@cs.uga.edu
- Office Hours: Thursdays
 - » And by e-mail appointment
- TA: TBD - check class web page for updates... probably none...



Maria Hybinette, UGA

3

Communication

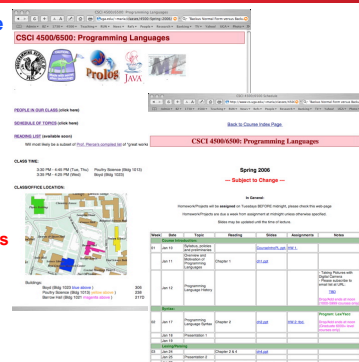
Web Page (different from image on right)

www.cs.uga.edu/~maria/
 » Navigate to course.

- Your Responsibility
 - » Understand policies, honor code
 - » Work independently on projects & homework
 - » Check page often for updates "refresh" to get latest copy

Class list / communication

- Piazza
- Part of participation grade



Maria Hybinette, UGA

4

Course Objective

- Learn about simulation and why it is useful
- Simulation techniques
 - » The focus is more on simulation execution rather than modeling, although we will do both.
 - » Agent Based Simulation Systems
 - » Biological Simulations (Social Animals)
- Hands on programming of ideas described in technical paper
- Introduction to research on simulation systems, past and present.
- History
 - » Parallel & Distributed Simulation is now in the mainstream ← Converting previous advanced simulation course to introductory simulation course.

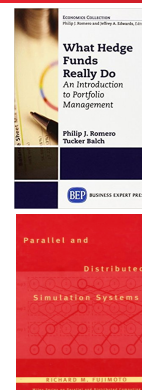


Maria Hybinette, UGA

5

How we're going to do it

- Read & Listen
 - » What Hedge Funds Really Do An Introduction to Portfolio Management, Romero, Balch
 - » Parallel and Distributed Simulation Systems, Richard Fujimoto
- Practice
 - » 3-5 introductory programming assignments
 - » 1 final project – preferably programming project
 - Proposal, Interim reports/presentations
 - Final Report & Presentation
 - » Technical paper summaries & presentations
 - Learn how to read/skim papers
 - present & listen to your peers
- Test
 - » 2 Midterms, 1 Final Project, Quizzer
- Talk and think in class, and outside!



Maria Hybinette, UGA

6





How to get an A? B? C?... F?

- Theory
 - » 2 Exams + Quizzes + Homework
- Practice
 - » Homework, weekly summaries & presentation & programming assignments, Final Project
- Participation
 - » 100% attendance will **raise** your final grade by **2%**
 - » **Constructive** participation on class list may raise your grade by **1%**



Maria Hybinette, UGA

7



How to get an A? B? C?... F?

- See syllabus web page ...
percentage break down



Maria Hybinette, UGA

8

Policy on Collaboration

- Assignments/projects/summaries:
 - » Purpose: familiarization of concepts and details of programming languages
 - » Work on project independently:
 - No direct sharing of code
 - No line-by-line assistant
 - No exchange of code
 - » You are encouraged to ask questions of one another, and to respond to other student's questions (and especially on the email list)
- Exams:
 - » Closed-book. No outside assistance is permitted. No additional materials may be used.
 - » No **make-up tests** unless absence is due to **serious** illness. Doctor's diagnostic note is required. The final grade will be scaled accordingly.

Maria Hybinette, UGA

9

Paper Summaries (more details later)

- 1 page summary of an assigned technical paper -- need to reflect that you understand the paper and its contribution(s) to the area:
 1. What is the problem that the authors are trying to solve?
 2. What is their approach and how is it original?
 3. What are the assumptions/limitations?
 4. What are the results/impact of paper (Why is this paper important)?
 5. What constructive criticism can you give to the presenter (e.g. would should have been included/excluded)?

Maria Hybinette, UGA

10

Paper Presentations

- 2-3 presentations will be expected, needs to be in power point.
- We will assign presentations next week or the following week. And start presenting Week 3.
 - » Caveat: If someone signs up for a paper and then later drops, we will need to shift the last scheduled person to the empty slot(s) (other volunteers are welcomed and will be solicited in class).

Maria Hybinette, UGA

11

Paper Presentations

- Turn in:
 - » Presenter:
 - Turn in .pdf of slides
 - 1 summary including self critique.
 - » Rest of class:
 - 1 summary

Maria Hybinette, UGA

12

Example Paper Summaries

1. What is the problem that the authors are trying to solve?
 - » Why is the problem important?
2. What is their approach and how is it original and innovative? (original - compare it against contemporary approaches).
3. How is the approach evaluated?
 - » What are the simplifying assumptions?
 - » What are the strength and weaknesses of their solution?
4. What are the results/impact of paper
 - » Why is this paper important?
 - » Did they solve the problem?
 - » Does it have an impact - is it still relevant? Why is it worth reading.
5. What constructive criticism can you give to the presenter (e.g., would should have been included/excluded, make sure to address 'concepts' covered in the paper and relate how they were covered by the presenter).

Maria Hybinette, UGA

13

Tentative/past projects for class

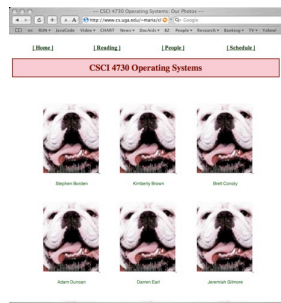
- Financial Market
- Discrete Event Simulation:
 - » Soccer Simulation Server Warm-up, not hard
 - » Simple Distributed Discrete Event
 - Ping/Pong like application
 - » Distributed Simulator
 - SASSY Familiarization
 - Agent Based Simulator
- Ant Simulator (Ant the insect)
 - » Tweaks in an existing simulator.
- Stock market modeling project
- Term Project

Maria Hybinette, UGA

14

Homework 1

- See schedule for details...
- Digital Image -- How to get out of the dog pound (and improve your grade).



Maria Hybinette, UGA

15

Introductions

First Quiz:

- Name, major, year?
- What are you hoping to learn from the class?
- What type of projects are you interested in?
- What do you want to do when you graduate?

Maria Hybinette, UGA

16