Introduction to ModSim

Welcome back! Please seat yourselves in every other row so the NINJAs and instructors can circulate easily among you.

Preamble: On Teaching and Learning in the Auditorium

The auditorium is not our favorite teaching space, but there will be times during the semester (fewer than 10 days out of 40) that we meet here because we think it's important to bring together the whole class at the same time. We appreciate your effort to stay engaged.

One way to help yourself stay engaged is to resist using your laptop except when you need it for a specific activity. You are welcome to use this worksheet to take notes, and we've designed it with that purpose in mind. That said, we will defer to your judgment as to when using a laptop in the auditorium is useful to your learning, and promise not to scold you unless you are doing something obviously off task.

We usually break auditorium sessions into chunks of no more than about 20 minutes each, alternating between "presentation mode" and interactive activities. During the activities we often ask you to do something on your own and then discuss with your neighbors. This is intended to benefit both you and your neighbors; you are both co-teaching and co-learning, not simply audience members in a lecture hall. If you are stuck or confused, don't hesitate to seek help (e.g., by raising your hand). And if you've had an "aha" moment, don't hesitate to share it more broadly.

Today's Agenda

1. What is this course about?
2. Let's get our technology set up!
3. Introducing Jupyter notebooks
4. Teaching team introductions
5. Questions, reflections, and next steps

We'll take a break between parts 2 and 3, and there will be a NINJA session in the library immediately after class. If you run into technical difficulties, don't worry (in the worst case, you can look on with a neighbor). Then do your best to get things working before class on Thursday.

What Is This Course About?

Use this space to capture points that stand out to you as especially interesting or important. Have your impressions changed since our first class last week? What are you still unsure about?

Let's Get Our Technology Set Up!

The goal of this part is to get to the point that you have obtained a copy of the ModSimPy code from GitHub and successfully opened the Chapter 1 notebook in Jupyter.

We will use these tools throughout the semester, so it's important that you have at least a rough idea about what they are and how they work. That said, if these tools are new to you, it's okay just to follow along for now — but you should make a note of things that are unclear so you can revisit them later.

Prerequisites

We assume that you have a laptop computer on which Python 3.6 and the libraries needed for ModSim have been correctly installed.

- If you are a member of the Olin Class of 2022, this should be true *if* you have run the script that was distributed by IT on Friday. (If you have not run the script, you can do that now — but note that it may take up to 10 minutes.)
- If you are an upper-class student or cross-registrant, you may need to follow the instructions in Section 0.5 of the ModSimPy book (in the Preface), or seek help from a NINJA.

Copying the ModSimPy files

We will walk you through the steps laid out in Section 0.6 of the ModSimPy book. These include creating a GitHub account, forking the ModSimPy repository, and cloning the forked repository to your computer.[1]

[1] First-year students should already have a Git client installed; we will show you how to use it from a command window.

Running Jupyter

Assuming that all hell doesn't break loose when 90 students do the steps above, we will walk you through the steps laid out in Section 0.7 of the ModSimPy book. If all goes according to plan, you will already have opened the Jupyter Notebook interface in a web browser, so you will simply need to navigate to the Chapter 1 notebook.

Before we take a break, we will probably show you how to run code in the notebook (hint: Shift-Enter) and ask you to run the first few cells to verify that your Python installation is working properly.

Use this space to make a note of anything that goes awry, or capture things you want to go back and think more about later:

Introducing Jupyter Notebooks

The goal of this part is to work through the Chapter 1 notebook, which accompanies the reading you did before class. The ModSimPy notebooks are intended to be self-explanatory, so we will not generally spend class time stepping through them in detail, but assuming we are roughly on schedule, we'll do it once today — both to help everyone get up to speed on the mechanics, and to help you develop good learning habits for working with notebooks.

Were you able to run the notebook successfully on your laptop?
If not, what did you do?

What is the answer to the last exercise?[2]

[2] Assuming the penny falls with constant acceleration a until 18 m/s and constant velocity thereafter, how long does it take to get from the top of the Empire State Building to the ground?

Teaching Team Introductions

In this part we're going to introduce ourselves (and some of our awesome NINJAs), tell you a little bit about why we're excited to be teaching this course, and briefly share our perspectives on modeling and simulation. Sit back, relax, and let your laptop cool off!

Reflection Questions

1. Which parts of the course are *you* most excited about? Are there parts you are less excited about? Nervous, concerned . . . ?

2. What are your goals for the semester with respect to this course? What does success look like for you, and how will you know you've achieved it?

Next Steps

Before class on Thursday, please do the following things:

☐ Write your name here: _____

☐ Right after class: If you had technical difficulties, find a NINJA in the library (or seek one out tonight).

☐ By tonight: Scan this worksheet and submit it on Canvas.

☐ By Wednesday night: Find and complete the Canvas assignment that contains the homework for Thursday's class (hint: Chapter 2!).

☐ Meet in the studios on Thursday.