DATASCI 151: Introduction to Statistical Computing II

Dr. Peter Sentz

Agenda

INTRODUCTIONS

CLASS DETAILS

COMPUTING ENVIRONMENT

INSTALLATION

About me

- My name is Peter Sentz
  - Calling me “Peter” is fine
  - If you’re too scared to do that, “Prof. Sentz” or “Dr. Sentz” works as well.

- Academic Background
  - Studied Mathematics (minoring in Economics) at University of Wisconsin-Milwaukee
  - Master’s degree in Applied Mathematics at University of Washington
  - PhD in Computer Science at University of Illinois Urbana-Champaign
  - Postdoc in Applied Mathematics at Brown University.
  - This is my second semester at Emory University

- Pictured: my (now 6.5 month old) daughter

- My research background is in the numerical solution of differential equations and scientific machine learning.

Teaching Assistants

- Anika Chandra
- Ishaan Jain
- Vicky Wang
- Angie Siaca Sanchez

They will be answering questions during some lectures and holding office hours (see Canvas for office hours information).

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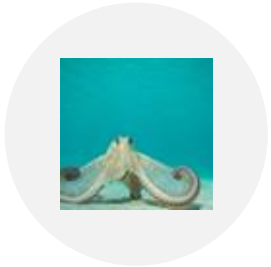

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Learning Objectives

- Learn how to code effectively in Python
- Learn about key programming principles
- Learn how to manipulate and visualize data

For more details and class schedule, review syllabus on course Canvas page!

Grades

- **Assignments (x 10):** 50%
- **Quizzes (x5):** 30%
- **Final Project:** 20 %
  - Will provide details mid-semester
  - Due at the end of the semester (April 27)
  - Groups of 3-4 students
- **Midsemester Survey:** + 0.5% (Extra)
- **Final Course Evaluations:** + 0.5% (Extra)

Late submissions

- Late assignments will automatically be graded for half-credit
- To account for unforeseen circumstances, we will drop the worst assignment and the worst quiz
- Watch out for the assignments to install software. You will need these to be able to use the lectures notes.

Coding ability is not innate

- Coding ability can be developed.
- Academic skills and abilities are acquired through hard work, **mistakes**, and perseverance.
- My only goal here is that you learn the material. Please ask me questions!

Questions about the logistics

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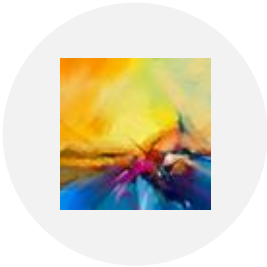


COMPUTING ENVIRONMENT

INSTALLATION

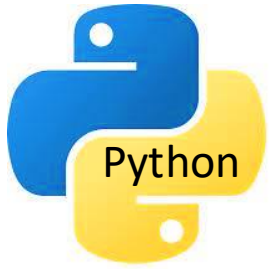
Two components:

ANACONDA

Virtual Environment

VS Code
Integrated
Development
Environment (IDE)

+



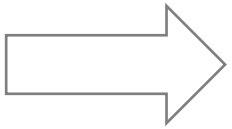
(in background)

Programming language we use to write the instructions

The “front-end” software that you open every time you code something in Python

A “back-end” software that you install once and hardly open again.

We open script files in VSCode



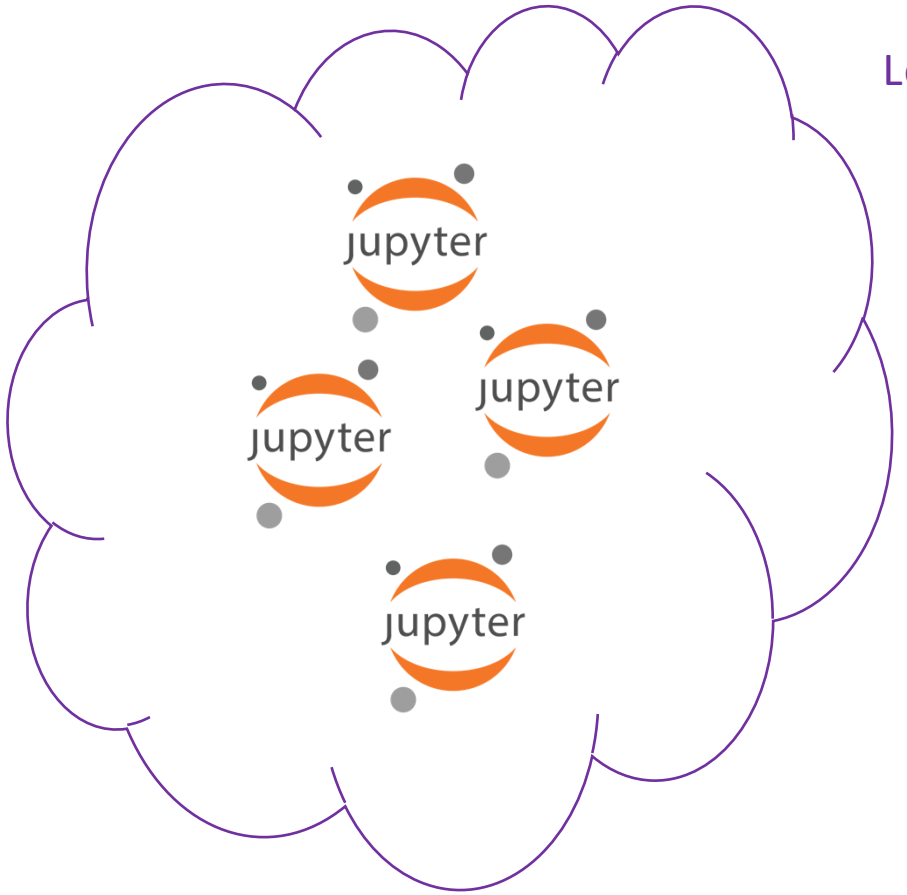
Script* File

- File with code in the Python **programming language.**
- Instructions for the program to follow

VS Code Integrated Development Environment (IDE)

Environment where the user writes the scripts

* Not really script files. Jupyter Notebook files



Lecture Notes

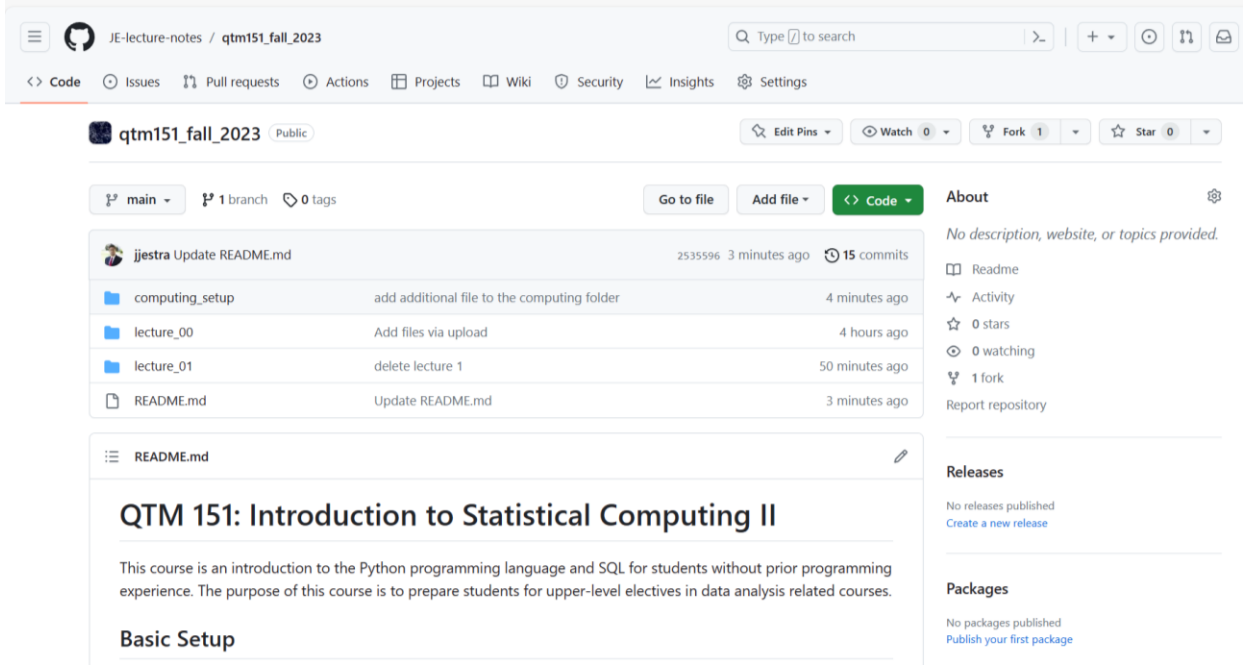
VS Code

Github:
A file management system in the cloud (with desktop app)

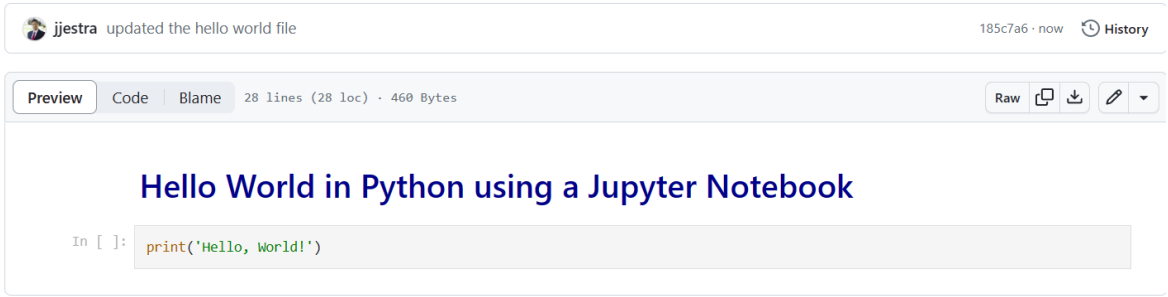
- Has version control
- Great for collaborative programming

Lecture notes are publicly available at my GitHub website (link posted on Canvas):

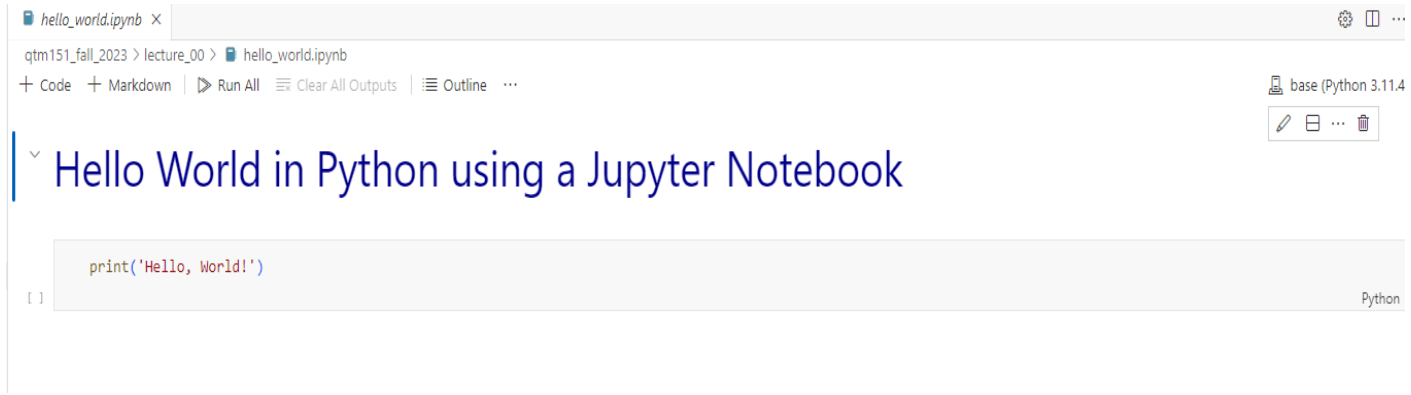
https://github.com/sentz2/datasci151spring2026



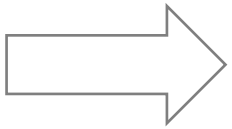
You can view the lectures in the browser



A Jupyter Notebook (“.ipynb”) is a file with code (python) and annotations (markdown)



- All the lecture notes are written as Jupyter notebooks
- It is encouraged that you bring your laptop to class
- Lecture notes are designed to be follow-along. There will be “try it yourself” exercises.

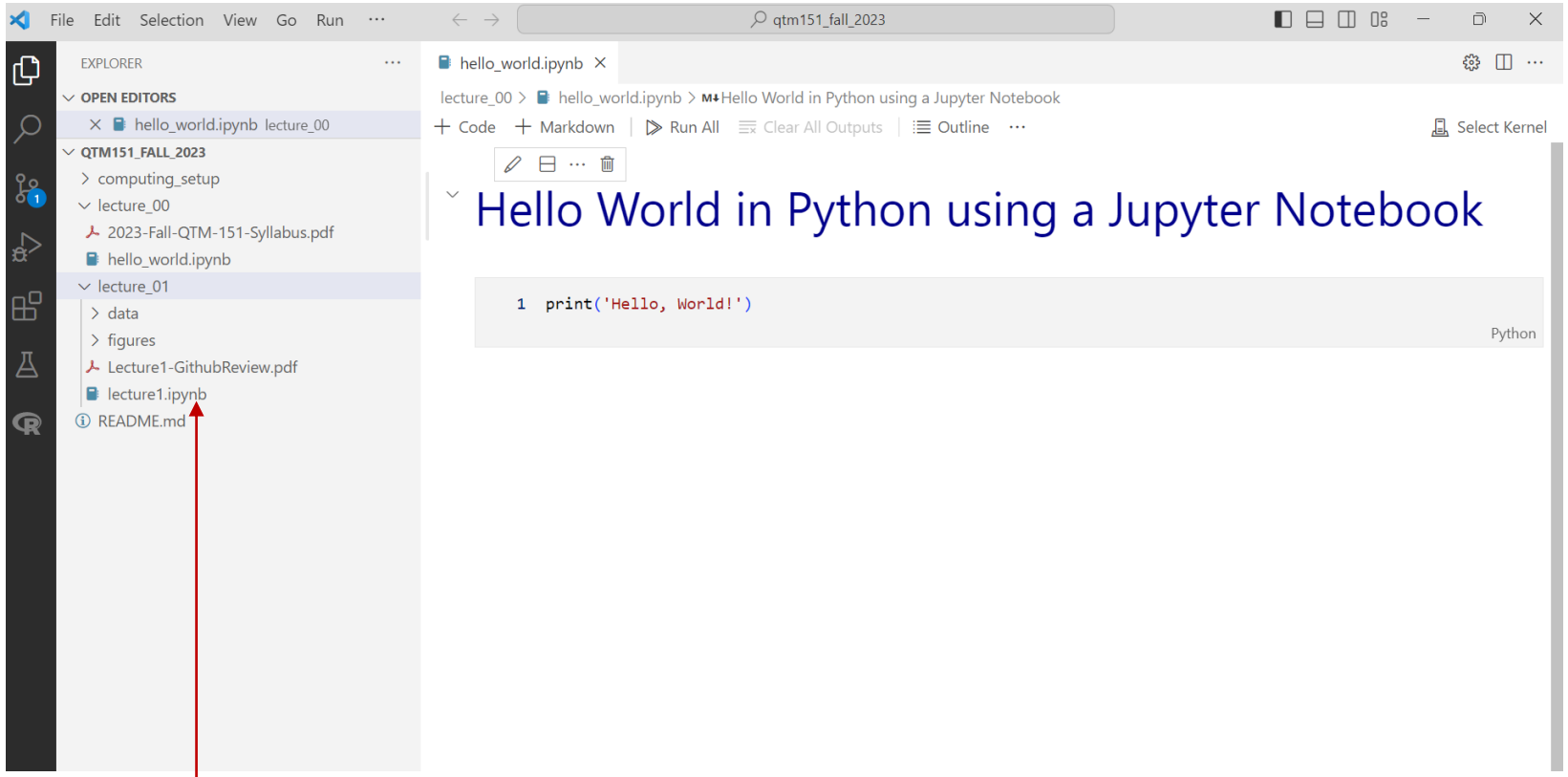


See **Assignment 1**

Basics of a Jupyter notebook

- Need to have all the tools installed
- Install **soon** that we can help you with any issues!

We will do all our coding in Visual Studio Code



Lecture notes

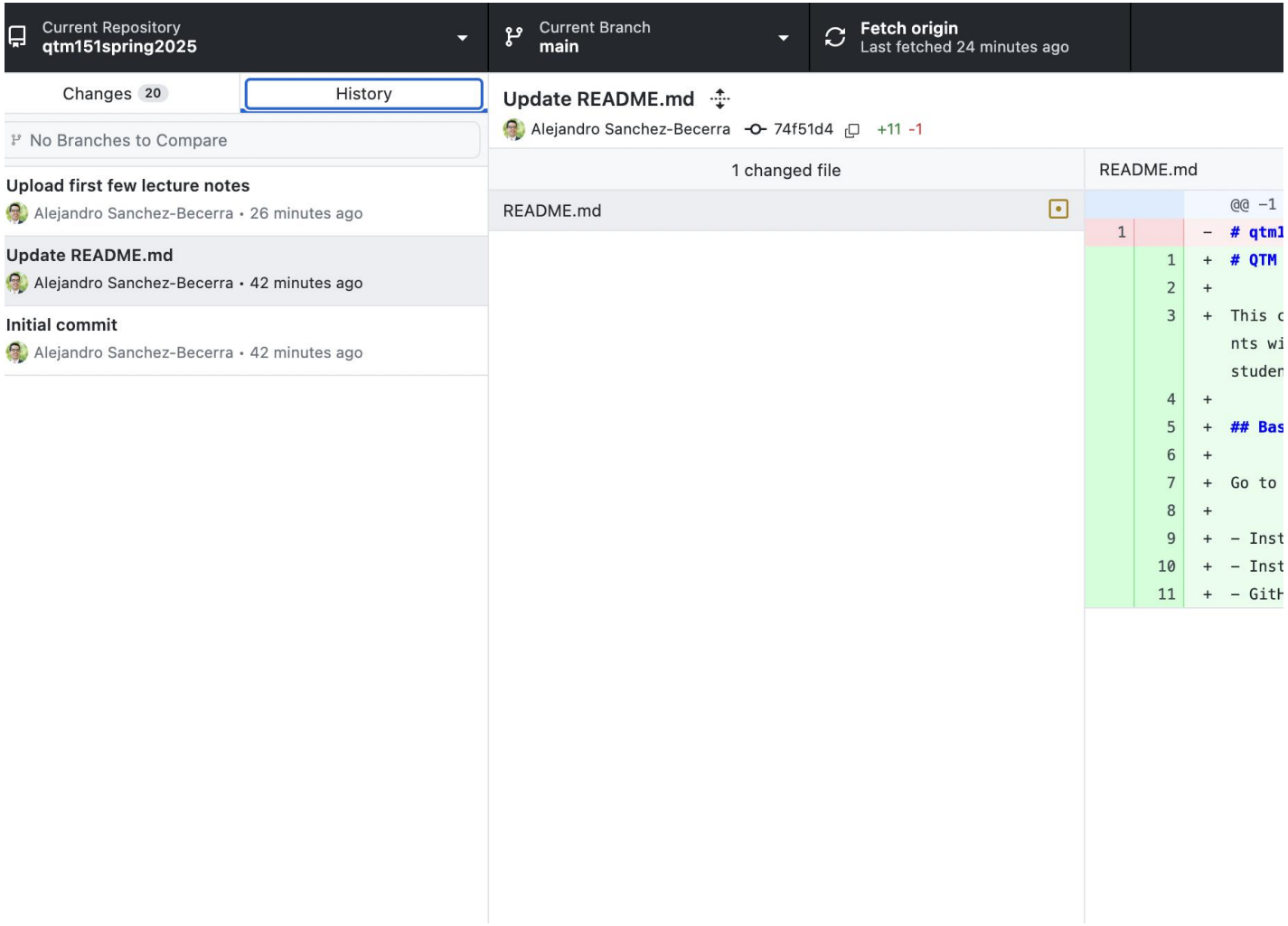
"ipynb": Interactive Python Notebook

Github Desktop will allow you to **automatically download the lectures notes** from my account (and update them).

It will also show you

- the date of any update
- what the changes are

Update the lecture notes before class!



Questions about computing environment?

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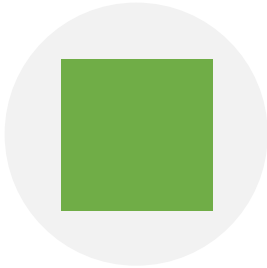

INSTALLATION

Let’s get started!

Go to “Modules” in Canvas and open the documents under “Installation” and follow instructions.

- I will stick around to help if you want to try installing everything today

- If you don’t complete the installation, we will return to this next class