



BMI 6018: Introduction to Programming

Module 1: Getting Started

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Overview

- Introductions
- Syllabus Review
- Programming Environment

Introductions

- Fatemeh Shah-Mohammadi

Introductions

- Rachel Nelson

Introductions

- Ram Gouripeddi

Introductions

- Welcome!
- Please tell us:
 - Your name
 - Why you are taking this course
 - Languages you know.

Syllabus Review

Expectations

- The course materials will be divided into modules (~14)
- Each module will consist of a series of in-class presentations and/or video lectures, as well as attached reading made available via Canvas modules.
- Students are expected to participate in the class and or watch the provided lecture, and read the material.

Assignments (All required to pass)

- Each module will consist of an Assignment and/or Quiz.
 - ~70% of grade
- Each module will consist of a Discussion board.
 - ~10% of grade
- Code Review Presentations
 - Students will be present and discuss their assignment during class.
 - 2 - 3 rounds
 - ~20% of grade

Module Timeline

- Modules will be released each Monday.
- All assignments and quizzes have a 1 week due date.
- It is in your interest to install python on your personal computer ASAP.
- Questions?

Course Goals

- Provide foundational knowledge of modern python programming
 - Common data structures
 - Common libraries
 - Familiarity with python functions and classes
- Provide foundational knowledge of biomedical data analysis
 - Data management, Data preprocessing, and Data analysis.
 - Data Visualization.
 - Machine Learning algorithms.
- Provide background knowledge of modern computing environments
 - Version/Source control (aka git)
- Comfortably use python packages, self-learn, be fluent, and get you started on data science.

Important Note

- This class will be very focused on programming. Programming is a verb and to develop command in it, you need to do it. A lot.
- The quizzes exist to ensure you are tracking along with the course content and are not meant to be difficult.
- Assignments will be majorly programming based and will test you on your ability to write functional programs based on class demonstrations.
- Please help each other with resources and concepts. But it is important that you write the code yourself.

Grading

- ~14 Assignment and Quiz
 - **70%** of grade
 - Late submissions 10% reduction.
- In-class presentations
 - ~3 per student.
 - Review of submitted assignment
 - **20%** of grade
- Class participation
 - During class time
 - Discussion board
 - **10%** of grade

Attendance

- Attending the class is not required but encouraged.
- We will post a recording of the class on canvas for you to follow.
- You would need to participate in the graded class discussion irrespective of attending the class.
- Also, some of the assignments would require you to be present during the class time, but if a time doesn't work for you we can discuss alternatives.
- Let me know if you cannot attend any the class(es).
- In person sessions: Review of issues. Mandatory for Internationals

Zoom

- Class will be via zoom.
- Mute yourself if you are not talking.
- Video not mandatory.
- Feel free to speak up in class. And chat
- Recording will be posted on canvas.

Tentative Course Timeline

| Date | Module # | Module Title | Holiday | Instructor |
|--------|----------|---|------------|--------------------|
| 19-Aug | 1 | Getting Started | | Ram/Fatemeh/Rachel |
| 26-Aug | 2 | Simple Data Types | | Ram |
| 2-Sep | | NO CLASS | Labor Day | |
| 9-Sep | 3 | Complex Data Types | | Ram |
| 16-Sep | 4 | Simple Logic | | Fatemeh |
| 23-Sep | 5 | Advanced Functions and Logic | | Fatemeh |
| 30-Sep | 6 | Debugging | | Ram |
| 7-Oct | | NO CLASS | Fall Break | |
| 14-Oct | 7 | Object Oriented Programming (OOP) | | Ram |
| 21-Oct | 8 | Libraries and NumPy | | Fatemeh |
| 28-Oct | 9 | Data Cleaning with Pandas | | Fatemeh |
| 4-Nov | 10 | Melt, Pivot, Aggregations and Iteration | | Fatemeh |
| 11-Nov | 11 | Coding supporting using StackOverflow, LLMs | No Class | Ram |
| 18-Nov | 12 | Visualizations using Python | | Ram |
| 25-Nov | 13 | Python for Machine Learning | | Fatemeh |

Office Hours

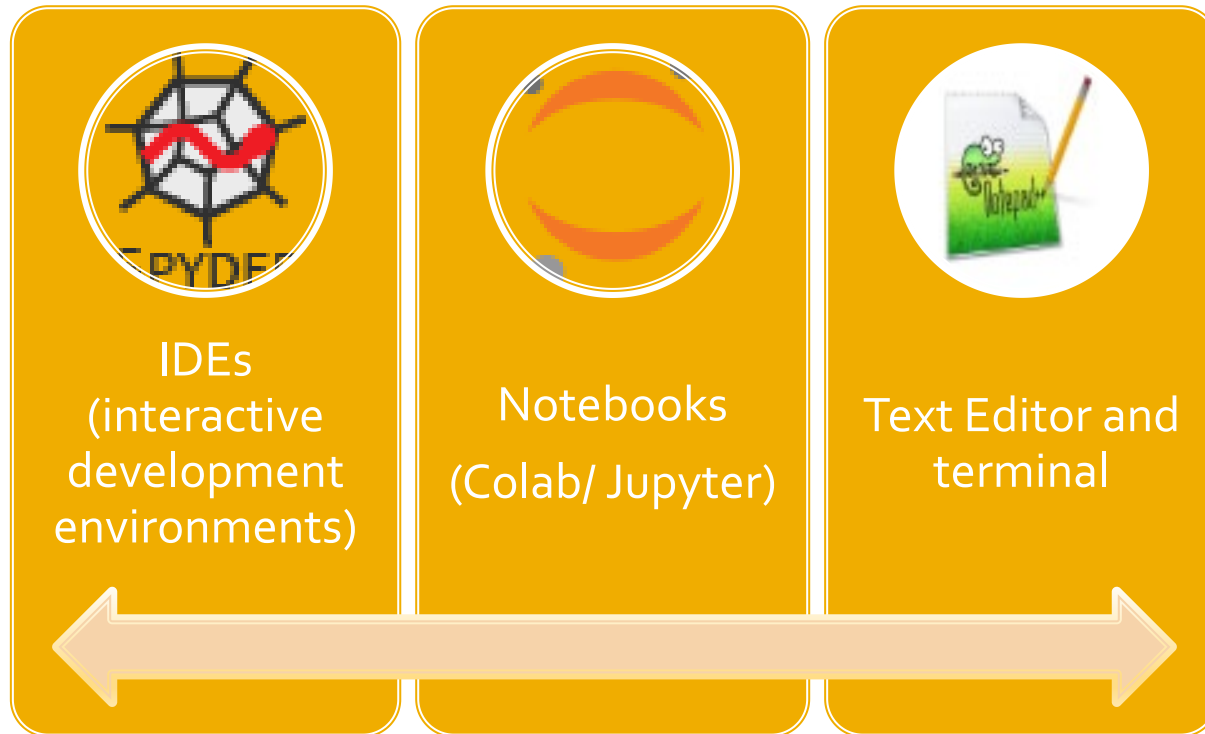
- Wednesdays, 1:00-2:00 PM
- Rachel Nelson
- Meeting via zoom
 - <https://utah.zoom.us/j/94605270614>
 - Meeting ID: 946 0527 0614
 - Passcode: 080225

Class Communication

- Questions about module material: Discussion board
- Canvas message
- Email.

How do you Python?

A Question of Taste and Context



IDE's are specialized software for writing software that include multiple programming tools into one software. These are used in writing large-scale software in companies and in research, but we will be using Notebooks for this course because of their ease of use and intuitive features.

How to Install Jupyter Notebook & Python

- https://www.youtube.com/watch?v=ClTWPoDHY_s&t=83s

GitHub

- GitHub is a type of version control website and cloud-based service that helps programmers store and manage their code, as well as track and control changes to their code. As a software project grows, version control becomes essential.
- Programmers need GitHub to effectively share their code, and to collaborate on large-scale projects, so that everyone can see each other's changes to the project and work in sync with each other.
- We will use GitHub to submit your coding assignments

GitHub Tutorial - Beginner's Training Guide

- A tutorial on how to use GitHub to create new repositories, clone repositories locally, commit changes and manage project files. This full-length tutorial is an introduction on how to use GitHub for beginners and experts.
- <https://www.youtube.com/watch?v=iv8rSLsi1xo>

Install Python

- Go to the Python.org website's Downloads page.
- Under "Download the latest version for Windows / Mac", you will find the latest version of python, download it.(currently 3.10.6).
- Run the installer.
- Note : If using windows, select the option saying "Add Python to PATH".
- Finish the installer.

Reminders



- Assignment 1
- Submit screenshots of you running the sample program



- Check Announcements
- This will be the primary way we communicate with you.



- Please reach out!
- And not just to us, but your fellow students. Our goal is for you to become proficient in python.

Thanks

- Questions?

Contact Information

- Email

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