Welcome to Week 1 Lecture 1!

Data Science in Python & Machine Learning

Agenda

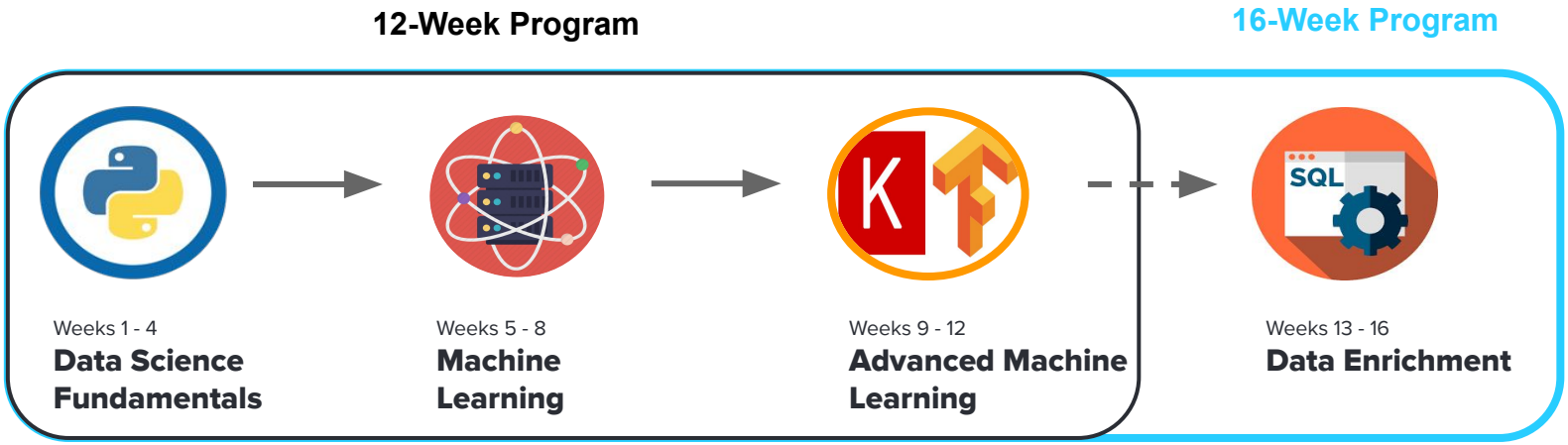
- Bookmarks to Save
- Stack Schedule
- This Week's Assignments
- 20 Minute Rule
- What is Data Science?
- Python for Data Science
- Object Oriented Programming
- Practice in Breakout Groups

Important Links to Bookmark

- Discord Channel: 01-24-Cohort-James
- Learning Platform (https://login.codingdojo.com/

- Daily Stack Schedule (https://bit.ly/32k7fwU)
  - Can always find in header of our discord channel.
- Your Feedback Document
  - Sent out via email last week.

Program Schedule



Did you sign up for the 12-week program but want to change to the 16-week program?

- **No problem!** Just contact Robbie Hannan rhannan@codingdojo.com and let him know you'd like to change programs.
  - Can do so up until the end of week 12

Our Daily Stack Schedule

https://bit.ly/32k7fwU

Data Science Fundamentals Daily Schedule

CODING DOJO

This document is subject to change!

Helpful Links	Group Code Review Sign Up Sheet	Schedule 1:1 w/ James	Lecture Zoom Link	TA ZOOM ROOMS: Room 1 Room 2	Student Use Zoom Room

Notes: all times in Pacific Time (UTC-8). Weeks run from Monday - Sunday. All assignments due at 11:59pm on the listed date.

Week 1

Mon 1/24 Python for Data Science	Tue 1/25 Python for Data Science	Wed 1/26 Python for Data Science	Thu 1/27 Python for Data Science	Fri 1/28 Python for Data Science	Sat 1/29 Python for Data Science
9am-11am TA Support (Adam) 1pm-6pm TA Support (Purvi) 4pm-7pm TA Support (Nicole)	9am-12pm TA Support (Purvi) 1pm-5pm TA Support (Purvi) 4pm-7pm TA Support (Nicole) 5pm-7pm TA Support (Mandy)	7am-9am TA Support (Mandy) 9am-11am TA Support (Adam) 3pm-7pm TA Support (Mandy) 5pm-6pm TA Support (Adam)	9am-12pm TA Support (Purvi) 1pm-5pm TA Support (Purvi) 5pm-6pm TA Support (Mandy) 5pm-7pm TA Support (Adam)	1pm-6pm TA Support (Purvi)	9am-12pm TA Support (Purvi) 11am-2pm TA Support (Mandy)
	4:30-5:00 Lecture room open for Q/A **5:00-6:00 Live Class - Intro to Data Science and Object Oriented Programming** Lecture Slides 6:00-6:30 Lecture room open for Q/A		4:30-5:00 Lecture room open for Q/A **5:00-6:00 Live Class - Loading & Viewing Data** Lecture slides 6:00-6:30 Lecture room open for Q/A		**Sun 1/30** 1pm- 5pm TA Support (Nicole)
Reading Course Outline, Why Python?, Google Colaboratory, Setup & Usage	Reading Print, Strings, & Variables, Simple Math	Reading Booleans & Conditionals, Lists	Reading Intro to NumPy Arrays	Reading Load Data	Reading Tuples, Dictionaries, For Loops

Our Daily Stack Schedule

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Important Sheet Links

ZOOM ROOMS

Data Science Fundamentals Daily Schedule

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Live Classes

Note: We are currently on PST (UTC-8)

Lectures

- Tuesdays & Thursdays
  - 5 - 6 pm Pacific Time

Office Hours

- 30 min before and 30 min after live class *--in the class zoom room!*

Group Code Reviews

- Mondays or Wednesdays
  - 30-minute group sessions.
  - Optional, but strongly recommended.
- Code Review Sign up sheet is inside our Stack schedule google sheet

Communication - Discord

- **Our main form of communication between your instructor, TAs & your classmates**
  - You should have already joined!
  - Our channel: “🏫01-24-cohort-james”

- ***If you have questions or concerns about the curriculum, program, or policies, please contact me*** (your instructor) and I will assist you or find someone who can!

Weekly Assignments:
Due Sunday 11:59pm PST

We check assignments with ***'(Core)'*** next to the title of the assignment at the start of each new week.

For this week:

- Bakery Numpy Exercise (Core)
- Project 1 - Part 1 (Core)
- Distance and Time (Core)

20 Minute Rule - When you begin to struggle:

1. **Try to rely on yourself first.** Spend 20 minutes trying so solve a problem on your own. **Utilize your wits, notes, internet resources,** etc as your primary resource.
2. **After 20 minutes, ask at least 2 of your cohort mates** for help---Post your questions to everyone on the Discord channel!!
3. **Ask a TA or instructor.**
4. While waiting for assistance, ***move on to something else*** to keep moving forward!

The key is to strike the perfect balance between taking it upon yourself to develop strength through struggle and knowing when to get help for the sake of efficiency.

Stack Progression

The minimum required to proceed to your next Coding Dojo course:

80% Lecture Attendance

Miss no more than 1 Live Class

90% Core Assignment Submission

Missing no more than 1 assignment

Passing Score on Belt Exam

What is Data Science?

"**Data science** is an i**nterdisciplinary field** that uses **scientific methods, processes,** algorithms and systems to **extract knowledge and insights** from noisy, structured and unstructured data and apply knowledge and **actionable insights** from data across a **broad range of application domains**…."

- Wikipedia's Definition of Data Science

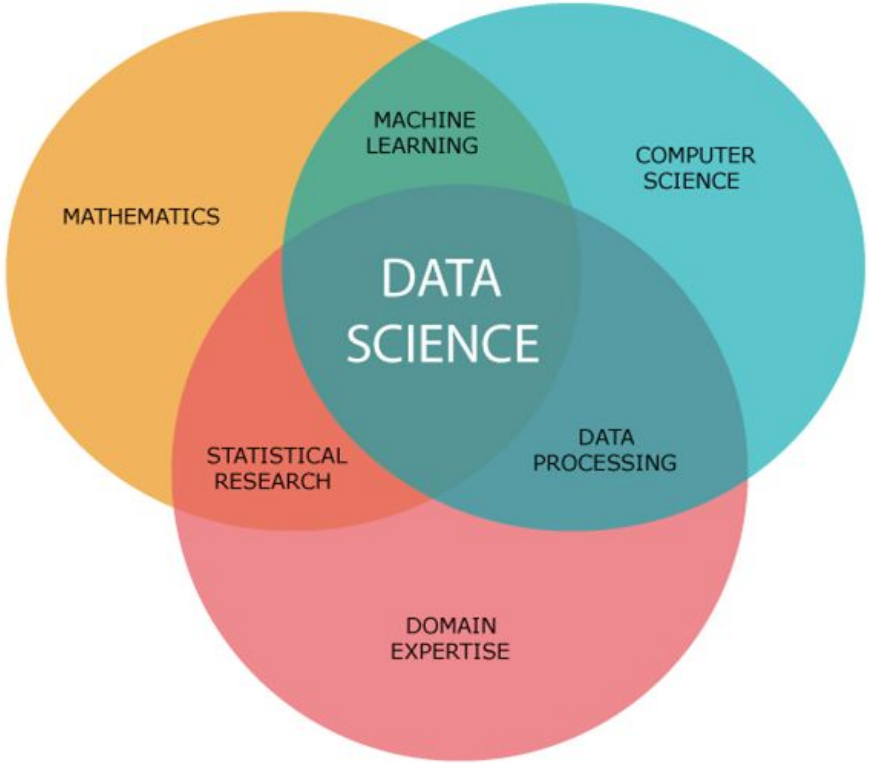


Image thanks to Serap Baysal

What do I need to learn?

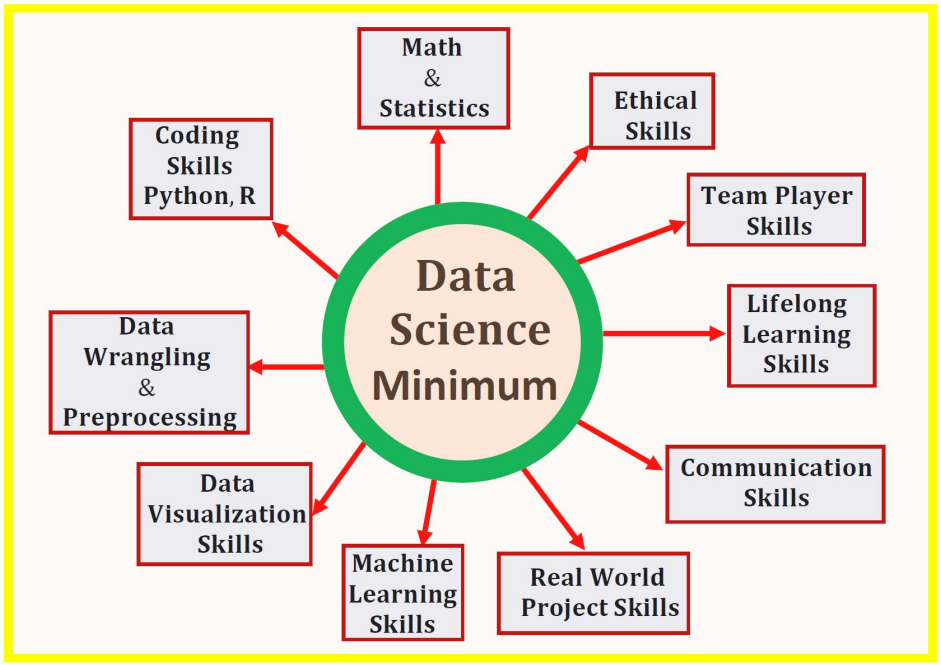
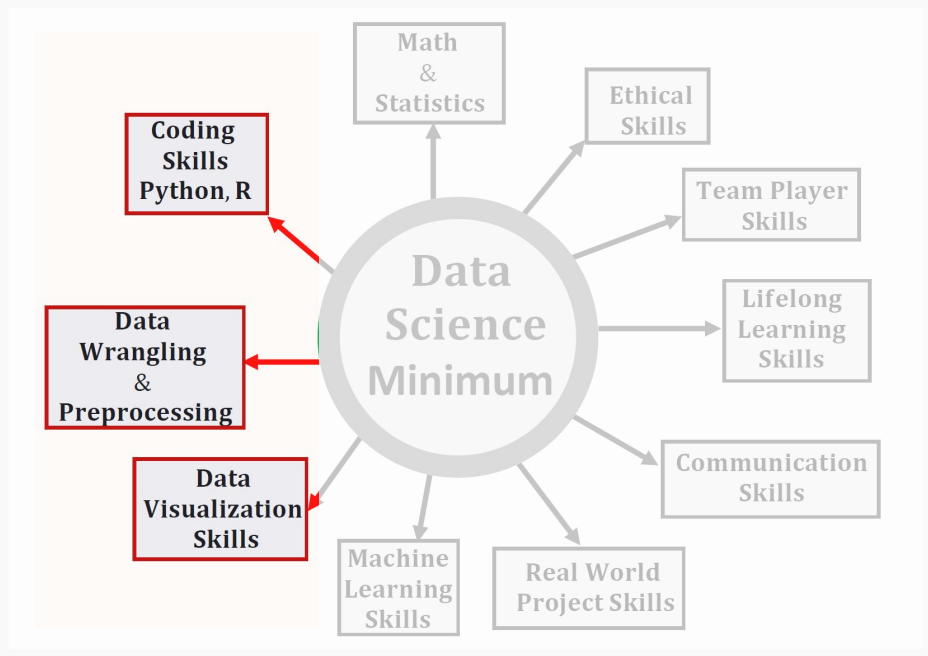


Image thanks to Benjamin Obi Tayo, Ph.D

Stack 1 Foci:

- Coding
- Data Wrangling
- Data Visualization



Week 1:
Python for Data Science

OOP: Object Oriented Programming:

Everything in Python is an Object!

Python Vocabulary

- Object-Oriented-Programming:
  - Every variable is an *instance* of a blueprint *class*.

- Before we get too *Class*-y
  - Let's review some basic python vocabulary in our Colab Notebook!

Python Classes

Classes are *blueprints* for different types of objects.

- **Classes**: type of object
  a. Ex. string, list, tuple

- **Objects**: specific example of classes
  i. Ex. (‘hello world’, [1,2,3], (‘hello’, ‘world’))

Example: PlayingCards

- **What attributes does a playing card have?**
  - Value (2, 3, …9,10,J,Q,K)
  - Suit (hearts/spades/clubs/diamonds)
    - Color: determined by suit.

- When we are playing a card game, **we usually hide** our cards' value and suit.

  - We **flip** them over when we want to see their value and suit.

Countakeshi. (2017). *English: Extra cards for playing the six-handed version of the Euchre variant, 500*. Own work. https://commons.wikimedia.org/wiki/File:Six-handed_500_playing_cards.jpg

How Much Do I Need to Know About Classes?

- Enough to understand how to *use them*.
- **You do NOT need to be able to write your own classes** as a Data Scientist!

- Examples:
    - Numpy Arrays.
    - Pandas DataFrames

Take it to Colab

When you open a Colab notebook from this course:

1. Open ‘File’ menu
2. Save a Copy In Drive
3. Change it, play with it, break it, fix it, make it your own.

In your breakout group:

1. Choose a **Leader** to read all text aloud and make sure the group remembers the directions.
2. Choose a **Driver** to share their screen.
3. The rest are **Navigators**, checking the Learn platform and Google for answers as needed.
4. Everyone code along to produce a completed notebook.

Please Click Here

To proceed to the Notebook

Notebooks from Today

- 01.24.22 Week 1, Lecture 1 - Python & Colab.ipynb
- 01.24.22 Week1, Lecture 1 - OOP Activity