Applied Mathematics and Statistics 553.287
Python for Data Science Applications
Intersession, 2019 (2 credits, EQ)

Description
An introduction to the modern tools used in data analysis and data science using Python. Tools include cloud computing interfaces such as AWS and modern numerical python packages such as numpy and pandas. This course will be a very applied introduction to the field and real-life applications will be heavily stressed.

Prerequisites
Some knowledge of coding and linear algebra recommended.

Instructor
Lucas Rosen, lrosen27@jhu.edu, https://github.com/lucas-rosen1/Data_Science
Office hours: By appointment (just send an email).

Meetings
Monday, Wednesday, Friday, 1:00–4:45 PM, Schaffer 300

Textbook
Recommended: Jake VanderPlas, *Python Data Science Handbook*, O'Reilly (2016).

Online Resources
The notebooks used in class will be put onto the Git repo linked above. Grades and datasets on Blackboard.

Course Topics

- Cloud Computing with AWS
- Conda and the Jupyter environment
- Numpy
- Pandas
- Matplotlib
- Sklearn

Assignments & Readings

- Homework due before each class. Homeworks due on Wednesdays and Fridays will be light. If these are taking you more than 30 minutes to an hour please talk to me. Homeworks due Mondays will be roughly triple this length.

- A final project at the end of the course.

Course Expectations & Grading

Each homework problem will be graded out of 2 points:

- 0 points if you did nothing or turned in "embarrassing" work.
- 1 point for a good effort but you may have missed some of the point of the problem.
- 2 points for basically getting it. Small errors will not be penalized.

Homeworks will have 1-3 problems (each problem may have multiple exercises but the whole problem is out of 2 points).

Coming to each class is worth 2 points. If you have a legitimate excuse email me.

The final project is 5 parts worth 2 points each.

A passing grade is considered as getting 3/4 of all possible points. I may lower this threshold if it seems like people are struggling but I will not raise this threshold.

Ethics
The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition.

In addition, the specific ethics guidelines for this course are:
(1) You may collaborate on homeworks but each student must turn in his/her own.

You can find more information about university misconduct policies on the web at these sites:

- For undergraduates: http://e-catalog.jhu.edu/undergrad-students/student-life-policies/
- For graduate students: http://e-catalog.jhu.edu/grad-students/graduate-specific-policies/

Personal Wellbeing

- If you are sick, in particular with an illness that may be contagious, notify me by email but do not come to class. Rather, visit the Health and Wellness: 1 East 31 Street, 410-516-8270. See also http://studentaffairs.jhu.edu/student-life/support-and-assistance/absences-from-class/illness-note-policy/
- All students with disabilities who require accommodations for this course should contact me at their earliest convenience to discuss their specific needs. If you have

a documented disability, you must be registered with the JHU Office for Student Disability Services (385 Garland Hall; 410-516-4720; http://web.jhu.edu/disabilities/) to receive accommodations.

- If you are struggling with anxiety, stress, depression or other mental health related concerns, please consider visiting the JHU Counseling Center. If you are concerned about a friend, please encourage that person to seek out our services. The Counseling Center is located at 3003 North Charles Street in Suite S-200 and can be reached at 410-516-8278 and online at http://studentaffairs.jhu.edu/counselingcenter/