

STA5934 Python for Data Science

Time: 9:30-10:30, Monday and Wednesday

Place: OSB 215

Text book: None.

Lecturer: Dr. Jinfeng Zhang

Office: 106E OSB

Office hour: 10:30 – 11:30AM Monday

The course will teach students data science programming skills in Python. The course will cover basic programming concepts and skills, and tools for data analysis and data mining.

Text book

Part of the course will use the book, Python for data analysis by Wes McKinney, O'Reilly (<http://shop.oreilly.com/product/0636920023784.do>). The ipython notebook files are available at <https://github.com/wesm/pydata-book>.

We will have homework and projects. Homework will be assigned unregularly.

Grading

Your grade will be determined based on combined performance of homework (50%) and projects (50%).

Teaching assistant

No teaching assistant for the course

Course Policies

Attendance is required throughout the semester. Persistent informal talking and any reading or studying of other materials will not be tolerated.

Topics

Videos will be provided for some topics. Videos will also be provided for basic statistics if necessary.

1. Introduction to the language of Python.
2. Variables, expressions and statements.
3. Conditional statements
4. Functions
5. Loops
6. Strings
7. Files
8. Advanced data structures
9. Regular expressions
10. Data loading, storage and file formats

11. Data wrangling: clean, transform, merge, reshape
12. Databases and SQL
13. Data visualization
14. Task automation
15. Data analysis with python: numpy
16. Data analysis with python: Pandas
17. Data mining tools in Python: scikits-learn

Tentative plan

Date	Lecture 1	Lecture 2
Week 1		Course Introduction
Week 2	Chapter 1	IPython Introduction
Week 3	Chapter 2	Statistical Graphics
Week 4	Chapter 3 Conditional execution and Chapter 4 Functions	Plotting and graphics
Week 5	Chapter 5 Iterations	Summary and homework
Week 6	Chapter 6 Strings and Chapter 7 Files	Intro to NumPy
Week 7	Chapter 8 Lists	Data Wrangling
Week 8	Chapter 9 Dictionaries	Pandas
Week 9	Chapter 10 Tuples	Proposal presentation
Week 10	Chapter 11 Regular expressions	Scikit-learn 1
Week 11	Chapter 12 HTTP	Scikit-learn 2
Week 12	Data structure and Algorithms	Scikit-learn 3
Week 13	Final project presentation	Final project presentation
Week 14	Final project presentation	Final project presentation
Week 15	Chapter 13 Web Services 1	Chapter 13 Web Services 2 and 3

Academic Honor Policy

The Florida State University Academic Honor Policy outlines the University’s expectations for the integrity of students’ academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to “. . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University.” (Florida State University Academic Honor Policy, found at <http://dof.fsu.edu/honorpolicy.htm>.)

Americans with Disabilities Act

Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Student Disability Resource Center; and (2) bring a letter to

the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact

Student Disability Resource Center

874 Traditions Way

108 Student Services Building

Florida State University

Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

sdrc@admin.fsu.edu

<http://www.disabilitycenter.fsu.edu/>