

# STA5934 Python for Data Science

Time: 12:20-1:10PM, Mon, Wed and Fri

Place: OSB 215

Text book: Python for Informatics and Python for data analysis (not required)

Lecturer: Dr. Jinfeng Zhang

Office: 106E OSB

Office hour: 1:10 – 2:10PM Wed

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

The python programming part of the course will use the free book, Python for Everybody available on <https://www.py4e.com/>. Data analysis 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, exam and projects.

## Grading

Your grade will be determined based on combined performance of homework (30%), exams (40%) and projects (30%). We will have two mid term exams.

## Teaching assistant

Xiaoyang Guo

## Course Policies

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

## Topics

Online 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	Lecture 3
Week 1	Course Introduction	Chapter 1	Chapter 2
Week 2	No class	Chapter 3 Conditional execution	IPython Introduction
Week 3	Chapter 4 Functions	Chapter 5 Iterations	Chapter 6 Strings
Week 4	Chapter 7 Files	Chapter 8 Lists	Chapter 9 Dictionaries
Week 5	Programming exercise	Chapter 10 Tuples	Chapter 11 Regular expressions
Week 6	Programming exercise	Programming exercise	Midterm exam 1
Week 7	Plotting and graphics	Statistical Graphics	Statistical modeling
Week 8	Intro to NumPy	Intro to NumPy	Data loading, storage and file formats
Week 9	Data Wrangling	Pandas	Pandas
Week 10	Pandas	Programming exercise	Programming exercise
Week 11	Programming exercise	Midterm exam 2	Data structure and Algorithms
Week 12	No class	Text mining with Python	Text mining with Python
Week 13	Text mining with Python	Scikit-learn 1 (optional)	Scikit-learn 2 (optional)
Week 14	Final project consultation	No class	No class
Week 15	Final project presentation	Final project presentation	Final project presentation

#### 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](mailto:sdrc@admin.fsu.edu)  
<http://www.disabilitycenter.fsu.edu/>