

Python for Linguists

Goals: This course is aimed at students interested in Computational Linguistics, who do not have any programming background. It will introduce students to the basics of a programming language (e.g. loops and if-statements) as well as the practical skills required for text processing tasks. We will use Python 2.7 in this course as well as associated libraries such as NLTK (Natural Language Processing Toolkit). There will be lectures, in-class exercises, as well as assignments, followed by a mini-project for students to complete. We will use readily available corpus resources in English as well as Indian languages, wherever available. This class will also serve as a pre-requisite to a Computational Linguistics/Natural Language Processing course.

Learning Objectives: By the end of the course, the students will be able to:

- * Use the command line to run programs, find files, navigate directory structure
- * Understand the use of loops, if-statements and functions in their programs
- * Be comfortable using data structures like lists and dictionaries
- * Write programs to become more efficient in linguistic analysis
- * Have an introductory knowledge to text processing

References:

There is no single textbook, but the references below are indicative:

Allen B. Downey (2015). Think Python (2nd edition). Green Tea Press

Steven Bird, Ewan Klein, and Edward Loper (2009). Natural Language Processing with Python — Analyzing Text with the Natural Language Toolkit. O'Reilly Media. <http://www.nltk.org/book/>

David Ascher and Mark Lutz (2013) Learning Python. O'Reilly

Course Plan:

The plan below assumes 30 classes (biweekly) spread over 3.5 months. (This can be modified based on specific calendars)

No	Topic
1	Introduction to course, installation of Python 3
2	Unix: sorting and counting
3	Unix: Environment variables
4	Intro to programming: running your first program
5	Objects: Strings & Integers
6	Conditionals: if-statements and truth tests (Assignment 1)
7	Objects: Lists, List methods
8	Objects: Dynamic Typing
9	Conditionals: Loops
10	Conditionals: Loops (Assignment 2)
11	Objects: Tuples
12	Objects: Tuples
13	I/O: Filehandling

No	Topic
14	NLTK: Introduction: (Ch1)
15	--Mid semester exam--/ Buffer
16	NLTK: Introduction (contd)
17	Objects: Dictionaries (Assignment 3)
18	Objects: Dictionaries
19	Functions -I
20	Functions - II
21	Modules; Mini project review
22	Regular Expressions -I
23	Regular Expressions – II (Assignment 4)
24	NLTK: POS tagging
25	NLTK: POS tagging
26	Classes & API
27	NLTK: Classifying text
28	NLTK: Classifying text
29	Class Review
30	Project presentations