CS 677

Boston University MET College 2026
Department of Computer Science

Information Structures with Python (CS 521)

Syllabus

Time & Location: Tuesdays 6 PM - 8:45 PM, MET 101 (1010 Commonwealth Avenue)

Instructor: Avi Mohan (avimohan@bu.edu)

Syllabus (tentative)
The course is divided into 7 modules that will each last roughly 2 weeks.

Module	Topics
1	Program structure, programming environments, input/output, variable scopes.
2	Data types, expressions, types and type casting, numerical data types, arithmetic, logical, assignment and relational operators, Boolean expressions, operator precedence, mutability.
3	Strings and text manipulation, indexing and slicing, collections, control flow, iterations.
4	Collections: lists, tuples, sets, dictionaries, comprehension, indexing and slicing, comprehension in mutable collections, searching and sorting.
5	Exception handling, functions, parameter passing, recursive functions, lambda function and functional programming.
6	Objects and classes, class constructors, attributes and methods, instance and static variables, data encapsulation, overloading, inheritance and polymorphism, abstract classes.
7	File I/O and file manipulation, working with CSV files, spreadsheets, and PDF files, web scraping with Python.

Required Textbook:

1. The Practice of Computing Using Python, by W. Punch and R. Enbody, 3rd edition, Pearson Publishing.
   ISBN 978-0-13-437976-0
2. Class notes.

Additional Material
With Python now established as the official language of machine learning, a wealth of accessible online resources is available for students to facilitate your learning.

- http://www.pythontutor.com/ - this website is very useful and allows students to run simple Python programs and visualize the execution.
- https://www.learnpython.org - free, interactive tutorial
- https://docs.python.org/3/tutorial - the official Python tutorial
- https://www.tutorialspoint.com/python - a detailed tutorial with many simple examples
- https://www.python.org/community/sigs/current/edu-sig/ - contains links to learning resources, including free books.