

Introductory Courses for Programming

1). MIT's free Coursera : <http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-00sc-introduction-to-computer-science-and-programming-spring-2011/Syllabus/> (along with about 15-20 other relevant course offerings)

A). A Gentle Introduction to Programming Using Python: <http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-189-a-gentle-introduction-to-programming-using-python-january-iap-2011/assignments/>

2). Rice University's Coursera "An Introduction to Interactive Programming in Python", with Coursera's signature track, students can obtain a "record" of completion: <https://www.coursera.org/course/interactivepython>

3). Harvard's continuing education offers "Intensive Introduction to Computer Science" course which may scratch some early subjects: <http://www.extension.harvard.edu/open-learning-initiative/intensive-introduction-computer-science>

4). OpenCulture.com lists many other free online courses (data structures and algorithms, intro to comp programming for scientists/engineers, etc): <http://www.openculture.com/freeonlinecourses>

5). Columbia – Offered Spring 2013 – COMS W1001 "Introduction to Information Science, Basic Introduction to concepts and skills in Information Sciences: human-computer interfaces, representing information digitally, organizing and searching information on the World Wide Web, principles of algorithmic problem solving, introduction to database concepts, introduction to programming in Python." Apoorv Agarwal

Columbia – Offered Spring 2013 – ENG E1006 "Intro to Computing for Engineering/Applied Science, An interdisciplinary course in computing intended for first year SEAS students. Introduces computational thinking, algorithmic problem solving and Python programming with applications in science and engineering. Assumes no prior programming background. Adam Cannon

Current offerings consist of COMS W1004 Intro to Computer Science – Programming in Java (Spring 2014, Adam Cannon), COMS W1005 Intro to Computer Science - Programming in MatLab (Spring 2014, Ilia Vovsha). There are also a number of short, but more advance courses in programming languages such as Rails, and C++ (COMS W3101) offered in Spring 2014. Summer 2014 courses are forthcoming.

A. Sample from Previous Term: Columbia's COMS W3101 – Programming Languages: Python

This is a 6-week introductory course to programming in Python. The goal of this course is to enable participants to get the best out of the features the language has to offer. After introducing language basics, the class will cover object-oriented and functional programming in Python, introduce important modules from the Python standard library, and then focus on Python paradigms and best practices to solve frequent tasks. We will investigate how to use Python in different scenarios; from small scripting tasks to medium-scale projects. This class focuses on "clean" Python 2.7, which is largely compatible with Python 3. Differences in Python 3 are mentioned, if necessary. Final Project - Instead of a final exam, participants will create a final project in Python based on their own interest. The final project is meant to be fun and provide more hands-on experience in addition to the shorter weekly homework assignments. It will also allow individual participants to look at more advanced topics that are useful to them (such as specific third party libraries). **Pre-requisites** Working knowledge of any programming language. <http://www.cs.columbia.edu/~bauer/cs3101-3/week2/lecture2.pdf>

Similar style materials from CS: Link to relevant slides: http://www.cs.columbia.edu/~aho/cs6998/lectures/11-09-20_Golec_Python.pdf

6). Columbia: Introduction to Programming in C, Entry Level (Summer): An intensive course designed to develop logic and programming skills through immersion in the fundamentals of C. Programming projects involving mathematical problems, word games, and graphics challenge students to develop their logical reasoning, systematic thinking, and problem-solving skills. Students learn the structure and features of a fundamental programming language as they implement solutions in C. <http://www.ce.columbia.edu/high-school/nyc/junior-senior-courses/introduction-programming-in-c>

7). Python.org also offers an online tutorial: <http://docs.python.org/2/tutorial/>

8). University of Chicago's "Introduction to the Python Programming Language" – archived class notes: <http://www2.lib.uchicago.edu/keith/courses/python/>