Overview: The purpose of this course is to provide an introduction to computer science as a discipline. Learning how to program is necessary to become a computer scientist. However, the discipline of computer science is about discovering accurate solutions to interesting, challenging problems that have real-world impact, and about representing these solutions in a precise way so that computers can assist with solving the problems.

Therefore, in this course we will investigate problem solving using computer programming. Along the way, you will learn the basics of computer programming using the Python programming language, covering topics such as flow control structures, string processing, and simple data structures. In addition, you will learn some fundamentals of the R statistical language for processing and analyzing data. The problem-solving and programming skills you will develop along the way will be applicable to a wide variety of areas, and will likely be a big asset to you in your future, whether in scientific or other pursuits.

Texts:

The following texts are available free of charge, either directly from the author or via the UR Library's Safari Books Online subscription. You may access the texts by clicking the title below (in an electronic form of this PDF) or via links on the course Web page. (If you are trying to access Safari Books Online from off-campus, you will need to install and use VPN.)

- *Python Programming for the Absolute Beginner*, M. Dawson
- *Python Crash Course*, E. Matthes
- *Think Python: How To Think Like A Computer Scientist*, A. Downey

I am providing multiple options for texts because you may prefer one author’s explanation of a topic over another’s. Throughout the semester, I will assign particular readings from among this collection. However, beyond the assigned readings, I encourage you to explore these and other books and learning resources that work well for you.

Assignments: This course will be “about doing”. Accordingly, the assignments will consist of regular homework assignments, regular short quizzes, and a few occasional longer quizzes. Because the format for, and structure of, this course is brand new this semester, the frequency and type of assignments may change. The goal, after all, is for you to learn, and we’ll be working on this together along the way!

Web Page and Email: I will use the course Web page and email for assignment-related information. It is your responsibility to check both frequently.

http://www.mathcs.richmond.edu/~blawson/smartcs/

Attendance Policy:

- You are expected to attend each class period for its duration. If you must miss a class or lab, you are responsible for any associated material. If there is a class that you must miss, please inform me in advance.
- Any student with an excessive number of absences is subject to a failing grade of V.
**Collaborative Work:**

- Unless I indicate otherwise on a specific assignment, your homework assignments may, and should, be discussed with others in this course, but are subject to the *empty hands policy*:
  
  You may freely discuss ideas with other students, but each student must leave the discussion without any written or otherwise recorded material.
  
  Any manifestation of copying another student’s work for your own (whether digital, hand-written, oral, etc.) is not permitted — this includes, for example, looking at another student's implementation and then writing “your own” version of that implementation.

**Special Notes:**

If you are allowed academic accommodations, or if your desire to observe a religious holiday presents a conflict with class activities, please contact me as soon as possible.

**Important Dates:**

- **Fall Break:** Mon 16 Oct – Tue 17 Oct
- **Thanksgiving Break:** Wed 22 Nov – Fri 24 Nov

*28 Aug 2017: The content of this syllabus and requirements of the course are subject to change based on how the course progresses.*