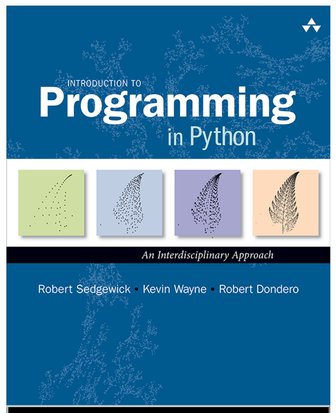

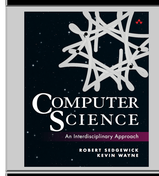

INTRODUCTION TO PROGRAMMING IN PYTHON

a textbook for a first course in computer science
for the next generation
of scientists and engineers

Textbook

Our textbook *Introduction to Programming in Python* [Amazon · Pearson] is an interdisciplinary approach to the traditional CS1 curriculum. We teach all of the classic elements of programming, using an "objects-in-the-middle" approach that emphasizes data abstraction. A key feature of the book is the manner in which we motivate each programming concept by examining its impact on specific applications, taken from fields ranging from materials science to genomics to astrophysics to internet commerce. The book is organized around four stages of learning to program:

- *Chapter 1: Elements of Programming* introduces variables; assignment statements; built-in types of data; conditionals and loops; arrays; and input/output, including graphics and sound.
- *Chapter 2: Functions and Modules* introduces modular programming. We stress the fundamental idea of dividing a program into components that can be independently debugged, maintained, and reused.
- *Chapter 3: Object-Oriented Programming* introduces data abstraction. We emphasize the concept of a data type and its implementation using Python's class mechanism.
- *Chapter 4: Algorithms and Data Structures* introduces classical algorithms for sorting and searching, and fundamental data structures, including stacks, queues, and symbol tables.
- *Appendices* provide supplemental material and a Python summary.

Booksite

Reading a book and surfing the web are two different activities: This booksite is intended for your use while online (for example, while programming and while browsing the web); the textbook is for your use when initially learning new material and when reinforcing your understanding of that material (for example, when reviewing for an exam). The booksite consists of the following elements:

- *Excerpts.* A condensed version of the text narrative for reference while online.
- *Exercises.* Hundreds of exercises and some solutions.
- *Python code.* Hundreds of easily downloadable Python programs and real-world data sets.

To get started.

To get started you must install either a Python 3 or a Python 2 programming environment.

Here are instructions for installing a Python 3 programming environment [Windows · Mac OS X · Linux]. We recommend that you install and use the Python 3 programming environment.

Here are instructions for installing a Python 2 programming environment [Windows · Mac OS X · Linux]. We recommend that you use the Python 2 programming environment only if you have a compelling reason (external to the requirements of this book and booksite) to do so.

We also provide I/O libraries for reading and writing text, drawing graphics, and producing sound.

To adopt.

You can request an examination copy from Pearson.