We are surrounded by information. This course introduces fundamental computational concepts for representing and manipulating data. Using the programming language Python, this course explores effective ways to organize and transform information in order to solve problems. Students will learn to design algorithms to search, sort, and manipulate data in application areas like text and image processing, social networks, scientific computing, and databases. Programming topics covered include procedural, object-oriented, and functional programming, control structures, structural self-reference, arrays, lists, streams, dictionaries, and data abstraction. This course is appropriate for all students who want to create software and learn computational techniques for manipulating and analyzing data.

**Organization.** During lecture hours we will typically learn new concepts through the building of new tools to solve simple problems. While the learning process is initially supported by an online text, I expect a dynamic approach to the class that will allow us to steer lectures in directions of mutual interest. During formal lab hours, we will meet for 90 minutes to begin work on a more extended problem. I expect that this work will be continued outside of scheduled time. As the end of the semester nears, we'll begin to think about individual projects that will focus on topics of our own interest. On occasion, we may meet in lab during our lecture hours.

**Work.** You are responsible for reading supporting material (*Think Python* (TP)) and participating as the semester progresses. In addition, some topics may require you to investigate online resources (documentation, tutorials, and the like). Each week you will be responsible for completing a programming assignment (30%) in addition to a written homework (10%). During the last few weeks of the semester we will work on individual projects (20%). This final assignment is expected to be an independent effort that will challenge your abilities and demonstrate your proficiencies. There will be a midterm examination on March 6 (in class, 20%), and a scheduled final (T.B.A., 20%).
Honor Code. The Honor Code as it applies to non-programming assignments is outlined in the Student Handbook.

For programming assignments in computer science courses, the honor code is interpreted in very specific ways. When a program is assigned, it will be described as a “practice,” “test,” “laboratory,” or “team” program. The Honor Code applies to each as follows (unless otherwise specified):

**Practice Programs.** These are provided to help you gain an understanding of a topic, and are not graded. Guideline: Help on these programs is unrestricted.

**Test Programs.** Any assignment designated as a test program is to be treated exactly as a take-home, open-book test. You are allowed to read your textbook, class notes, and any other source approved by your instructor. You may not consult anyone other than your instructor. The instructor encourages the asking of questions, but reserves the right not to answer, just as you would expect during an exam.

Guideline: Any work that is not your own is considered a violation of the Honor Code.

**Laboratory Programs.** Laboratory programs are expected to be the work of the individual student, designed and coded by him or her alone. Help locating errors and interpreting error messages are allowed, but a student may only receive help in correcting errors of syntax; help in correcting errors of logic is strictly forbidden.

Guideline: Assistance in the design or coding of program logic will be considered a violation of the Honor Code.

**Team Programs.** Team programs are laboratory or test programs to be worked on in teams of two or more students. You are allowed to discuss team programs with your partners, but work with others is otherwise restricted by the appropriate rules above.

Guideline: Any work that is not the work of your team is considered a violation of the Honor Code.

If you do not understand how the Honor Code applies to a particular assignment, consult your instructor. Students should be aware of the Computer Ethics outlined in the Student Handbook. Violations (including uninvited access to private information and malicious tampering with or theft of computer equipment or software) are subject to disciplinary action.

Guideline: To protect your work dispose of printouts and copies of your work carefully, and avoid leaving your programs on hard disks in labs and other public storage areas.

*The Department of Computer Science takes the Honor Code seriously.*
*Violations are easy to identify and will be dealt with promptly.*

The College and Department also have computer usage policies that apply to courses that make use of computers. You can read more about these policies at