

CS 100

Principles of Computing

Fall 2018

Dr. David Nordstrom

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Office: TBA

Office Hours: Monday and Wednesday 1:30 - 3:00 office: TBA

Text books (required)

Daniel Hillis, *The Pattern On The Stone: The Simple Ideas That Make Computers Work*, W. D. Basic Books (1999).

Peter Wentworth, Jeffrey Elkner, Allen B. Downey, and Chris Meyers, *How to Think Like a Computer Scientist: Learning with Python 3*, October 2012 Edition. **This book is available free online [here](#).**

The course

This is a course for non-computer science majors on the fundamental ideas of computing. We will look at the the basics of computing hardware and software, processes necessary to be creative in computing (abstraction, algorithms, etc.) and how computing relates to the world around us.

There are no prerequisites for this course.

Exam dates

Midterm exam: Wednesday, October 10 during class time.

Final exam: Monday, December 17, 10:30 - 1:15.

Communication

Piazza will be used for general discussion. You can see the TA (to be announced soon) or myself during our office hours.

Independant work

The George Mason University Honor Code can be found [here](#) and the CS Department Honor Code can be found [here](#). You are bound by these codes. A violation of either of these codes will result in a visit with the GMU Honor Committee.

Discussion of the problems which arrive in doing your work is acceptable -- in fact encouraged. But any work you submit must be yours alone.

Learning outcomes

By the end of the semester, a passing student will be able to carry out the following types of activities:

1. Students will be able to use technology to locate, access, evaluate, and use information, and appropriately cite resources from digital/electronic media.
2. Students will understand the core IT concepts in a range of current and emerging technologies and learn to apply appropriate technologies to a range of tasks.
3. Students will understand many of the key ethical, legal and social issues related to information technology and how to interpret and comply with ethical principles, laws, regulations, and institutional policies.
4. Students will understand the essential issues related to information security, how to take precautions and use techniques and tools to defend against computer crimes.
5. Students will recognize the significance of the "big ideas" of computational thinking.

Homework

There will be homework assignments made from time to time. These will include work "written in English" and, later in the course, some simple Python programs. All homework will be submitted on Blackboard. **No late homework will be accepted for non-programming assignments. Late programs will be accepted with a 10% penalty per day late.**

Topics

Topics covered will depend on interest as the course develops over the semester. Possible topics include (but are not limited to):

- the nature of computing hardware: bits, bytes, instruction sets etc.
- the nature of software: problems writing reliable software in the large (software engineering)
- the life of a programmer
- principles of operating systems
- basic Python programming
- algorithms
- algorithmic complexity

Grading

There will be a midterm exam and a final. No late exams will be given except for *very* good reason as judged by me. Grades will be computed from a weighted average using the following weights:

- final exam 40%
- midterm exam 35%
- homework 25%