

## CS111 Exam 1 Prep

### Topics

#### Intro to Computer Science

- algorithms, programs
- programming languages

#### Programming Basics

- process of writing and executing Python programs
  - interactive and batch mode
- Python keywords
- data types
- variables, identifiers, constants
- numbers and arithmetic operations
- integer vs float division
- operator precedence
- strings and their operations
- calling functions
- importing modules and using functions from modules
- formatting output (format specifiers)
- data type constructors (converting between data types)
- Style: “good” variable naming, readability

#### Control Structures

- for loops (how does xrange work?)
- conditionals
- relational operators
- boolean operators
- if statements
- while loops

#### Linux

- terminology
- basic commands
- file structure

**What I expect from you on exam:**

- To know the Python/programming terminology
  - o E.g., names for types of statements
- To know Linux commands and how to use them, given a typical situation from lab
- To be able to read a program and describe what the program is doing at a high level in plain English (comments), trace through the program's execution given input (control flow), and say what the program outputs
- To be able to write a program (given an algorithm or creating your own algorithm, given a problem)
  - o Syntax must be very close to correct (correct keywords, indentation, special characters, variable naming, operations)
  - o Since the exam is on paper, there is some leniency—may mark it up somehow if, for example, something should be indented

**Suggestions on how to prepare:**

- Practice reading through programs, tracing through them, and saying what the output should be
- Practice programming on paper and verify program in Python. (Use problems from class or labs.)
- Read through slides for vocabulary and non-problem-solving exercises
- Review Linux commands