

# Midterm Review

L435/L555

Fall 2016

## 1 Organization

The exam will be take-home, starting Tuesday, October 11 after class and due Thursday, October 13 at 5pm. We will not have class on the 13th.

You are to work on your own, unassisted, though you may ask me for clarifications.

## 2 Format

You will be asked to write different short programs. You may also be asked to correct a program which is not written properly.

## 3 Topics

Go over the slides (& the book & any other resources) and make sure you understand the topics listed below. You will not be tested on Unix, although you may have to use Unix tools in order to manipulate files, etc.

- Basics
  - Data types: numbers, strings, lists, tuples
  - Conversions between data types: `int`, `float`, `str`, `list`
  - Variables
  - `input`
- Sequences: Lists & Tuples
  - Indexing & slicing
  - List operations: membership (`in`), length (`len`), maximum (`max`), minimum (`min`), summation, (`sum`), deletion (`del`)
  - List methods: `append`, `pop`, `insert`, `index`, `count`, `extend`, `sort`, `reverse`, `remove`
  - Tuples & mutability

- Conditionals
  - `if/else/elif`
  - Blocks & indenting
  - Truth values (e.g., what counts as false) & conditional tests
  - Combining conditions: `and/or/not`
- Loops
  - `while, for`
  - Termination, loop control variable incrementation
  - Iteration/until usage
  - `break, continue`
  - `range` function
  - List comprehensions
- File input/output
  - `open/close`
  - Looping over input: `read/readline/readlines`
  - `write/writelines`
  - Piping from terminal (`fileinput.input()`)
  - Command-line arguments (`sys.argv`)
- Strings
  - Indexing & slicing
  - `.format()`, including conversion types
  - Methods: `find, split/join, lower/upper, replace, strip/rstrip`