

## Outline for December 5, 2012

**Reading:** §15

**Assignment due:** Friday, December 7, 2012 at 11:55 PM

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1. Review session announcements
  - a. Last day of class is on *Friday, December 7, 2012*
  - b. Final exam is on *Thursday, December 13, 2012* in the usual lecture room (3 Kleiber)
  - c. Review sessions:
    - i. Monday, December 10, 2012 at 1:00pm–2:00pm in Giedt 1001
    - ii. Wednesday, December 12, 2012 at 10:30am–11:30am in 3 Kleiber
2. Tuple
  - a. Ordered list of elements
  - b. Just like a list, but immutable
  - c. Simultaneous assignment an example of it
3. Review: file I/O
  - a. Reading in the whole thing [*fileio1.py*]
  - b. Reading line-by-line: `for` loop [*fileio2.py*]
  - c. Writing to a file: `write` method [*fileio3.py*]
  - d. Writing to a file: `print` and `file=` [*fileio4.py*]
4. How to Write a Program: Bottom Up
  - a. Problem: approximate the value of  $\pi$  as follows: toss darts at a  $2 \times 2$  dart board centered at  $(0, 0)$ . Then the ratio of the darts hitting the board in the unit circle centered at  $(0, 0)$  to all darts is  $\frac{\pi}{4}$
  - b. Step 1: write a program that generates dart tosses (actually, where they hit the board) [*mc-1.py*]
  - c. Step 2: write a program to determine if a point in the square is in the unit circle [*mc-2.py*]
  - d. Step 3: write a program to read in a positive integer, and reject anything else [*mc-3.py*]
  - e. Step 4: now pull it all together [*mc.py*]