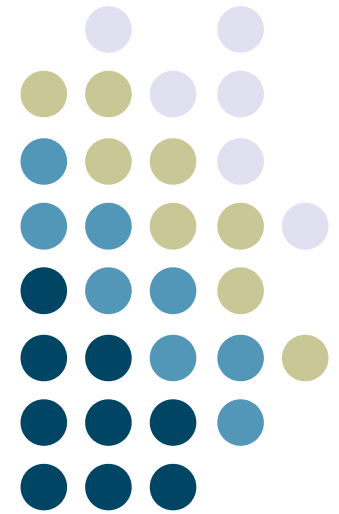# Welcome to CS 6452!
Prototyping Interactive Systems

Georgia Tech

Agenda

- Introductions

- Motivation for the class

- Structure of the class

- Class content

- Getting started with Python

Now it is your turn

- Name

- Degree program

- Your experience programming

- Other relevant experience related to computing

- Why are you interested in this class?

- What one thing did you do this summer that you never did before?
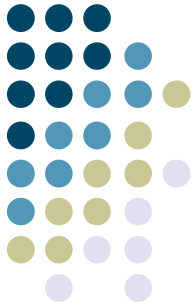
Big Decision for today

- Do you NEED to be in this class?

- Do you WANT to be in this class?

- Ask questions in class TODAY to help you figure this out.

Class Website

http://www.kedwards.com/cs6452

T-square site

Preliminaries

- Laptops
    - Bring to each class
    - Will use in lab exercises, etc.
    - Please leave closed otherwise

- You are responsible for checking on t-square and course website regularly for assignments and class preparation

What does Prototyping Interactive Systems mean, anyway?

- Rapid creation of interactive systems through programming

- Exposure to a variety of modern programming activities

- Some theory, mostly pragmatic, with some exposure to developing skills to describe and defend design choices

Original motivation for 6452

- Computing requirement for HCC Ph.D. programming
  - Basic level of competency in building programs yourself
  - Confidence in assessing and learning new programming paradigms, tools and languages
  - Learn about software architectural design considerations (e.g., how solutions are put together and assessing options)
  - Should help you satisfy the computation portfolio requirement
    - Technical reading/writing/doing/talking

Class is now popular beyond HCC

- Mostly masters students

- Exposure to programming if you haven't had any

- Lots of variability in experience/skill with programming
  - That's OK, but think about whether you will be "bored" by this class
  - There is a more advanced UI programming course offered

Class Content

1. Programming in Python
    Coding, data structures, tools, etc.
    Data access, manipulation, and visualization
        Manipulations on the web

2. Object-oriented programming in Java/Processing
    Coding, tools, etc.
    Event-driven GUI programming

3. Physical prototyping and hardware
    3D printing and laser cutting
    Arduino

… Maybe a few extras along the way

Grading Criteria

OLD:

In-class participation	20%
Readings	10%
Programming assignments	70%

NEW:

In-class participation	20%
Programming assignments	80%

(We'll fold the reading portion into the homework assignments)

Style of class

- Some/most of classes will have a studio model to them

  - Review of a reading or a quick idea

  - In-class, hands-on activity (individual or small group)

  - Reflection

Quick poll. Who has experience with …

- Python
- Processing
- JavaScript
- Java
- Swing or JavaFX
- iOS app development (Swift)
- 3D printing, laser cutting
- Arduino

Python

- Our first programming language to examine
- Interpreted, interactive
- Includes object-oriented capabilities, but not what many Python programs use (not what it's known for)
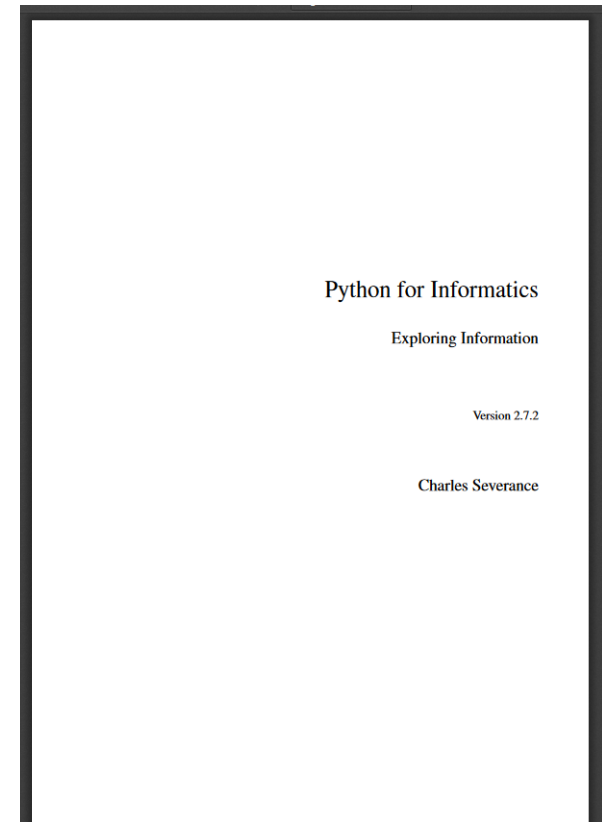- Loads of libraries
- Useful for web tasks

Python

- "In-between" versions 2 and 3
  - Some subtle but important changes to the language

Resources

- Borrow or buy a book (any good one will do)
- Free online text

http://do1.dr-chuck.net/py4inf/EN-us/book.pdf

Python for Informatics

Exploring Information

Version 2.7.2

Charles Severance

Informal HW

Getting ready for next time

- Install Python on your laptop
  - Mac folks – Should already have version 2.7
  - Windows folks – Get version 2.7 from web