

# CSI 31 LECTURE NOTES (Ojakian)

## Topic 8: Classes - Intro

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### OUTLINE

(Goldwasser/Letscher ch 6.1)

1. Examples of Classes
  2. Objects and Classes.
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#### 1. Examples

- (a) Existing Class: List Class
- (b) Creating a Class: Die Classes of increasing complexity
  - i. Commands: `class`, `__init__`
  - ii. First basic with just set and get
  - iii. Then with number of sides and appropriate restriction on SET
  - iv. Then with random ROLL.
    - A. Use: `randint(a,b)` from random package - gives random integer  $x$  such that  $a \leq x \leq b$
- (c) Create another Class: BCC Student Class  
Include attributes for following: name, number of credits, whether or not the student can graduate, number of semesters, average credits per semester.

#### 2. Objects

- (a) Terminology: class, instance, instance variables, methods, attributes, constructor
- (b) Strategy: Have *mutator methods* for changing the object. Have *accessor methods* for getting information from the object.
- (c) Purposes of Objects
  - i. Model a real-world object (example: the die)
  - ii. Group together related data (example: about a student)

#### 3. Use of main()

Complete program with `main()` ...

#### 4. Practice Problems

**\*PROBLEM\* 1.** Create a class *MRect* (i.e. a mathematical rectangle as opposed to a graphical one). It is constructed with two inputs: Its length and width. Create methods for each of the following: Getting its length, getting its width, getting its area, getting its perimeter, determining if it is a square or not.