Fall 2011 - CS 190
Final Study Guide

Note: this is not meant to be an exhaustive list. This is meant to give you a starting point and some directions to study. You can (and should!) also review your old quizzes, pre-class exercises, end-of-chapter problems, homeworks, etc.

Robotics stuff:
- What are the three laws of robotics?
- Know and be able to summarize each of the 9 stories in *I, Robot*.
- Why were the stories in *I, Robot* remarkable, given the time in which they were written?
- Define (and give examples):
  - actuators
  - effectors
  - active sensors
  - passive sensors
  - reactive control
  - behavior-based control

Programming:
- What is conditional execution? How does it influence/affect the flow of execution of a program?
- What are boolean values?
- comparison operators: <, <=, >, >=, ==, !=
- What is the difference between = and ==?
- Logical operators: and, or, not
- What do elif and else clauses do when used with an if-statement?
- Review from previous exam:
  - What are the two program constructions we've seen for iterating/looping over code?
    - Give the general form of each.
  - What's an infinite loop and how can we prevent one?
  - How does a for-loop work?
  - What does the range function return?
- What are lists?
- How do you define them in python?
- How can we get a specific element out of a list?
- How can we find out how many elements are in a list?
- How can we use lists in conjunction with for-loops?
- How can we search for a specific value in a list?
- What is the index of the first element in a list?
- What does the error "index out of bounds" mean?
- What is 'slicing' in the context of lists?
- Given a list referenced by the variable x, What does the statement x.sort() do?
- x.append("Bob")?
- x.reverse()?
  - What does x[startnum:] return?
  - What does l[startnum:stopnum] return? Be specific about which elements are included.
  - How can we change the value in a list at a specific position?

- Describe an color image, computationally.
- What is "computer vision"?
- What RGB triplets represent the colors white, black, red, blue, and green?

- What are return values?
- How does the return statement effect program execution flow?
- In Myro, understand pixel manipulation.