References

Object-Oriented Design Heuristics, Riel, Addison Wesley, 1996
Reading

Jan 27 - Big Ball of Mud, http://www.laputan.org/mud/mud.html

Jan 29 - Refactoring, Chapters 1 & 2

Feb 3 - Refactoring, Chapters 3 & 4

Feb 5 - Iterators, Null Object Pattern, Visitor
Course Web Site

http://www.eli.sdsu.edu/index.html

on-line courses

CS 635 Spring 09

Lecture Notes
Assignments
Wiki
Mailing List
Syllabus
Reading Assignments
Languages

Java, C++, C#, Ruby, Objective C or Smalltalk
Preferred Languages

Java
Smalltalk

Ruby
C#

Programs have to run in Mono

It is your responsibility to insure this

No support
C++ is STRONGLY Discouraged

I have not used C++ in over 10 years

I don't like the language

It is very difficult to grade
   Each additional language make grading harder

It is extremely hard to deal with GUI assignments in C++

Assignments are often harder in C++
What this course is about

Writing quality OO code
Design Patterns
Coupling & Cohesion
Unit Testing
Refactoring
Scale Changes Everything
Review
Define

Object
Class
What are the Benefits of OO
public class A {
    public int x;
    public int y;
    public int z;
}

Issues?
Issues?

class Stack
  def initialize
    @elements = Array.new
  end

  def empty?
    return @elements.empty?
  end

  def push(element)
    @elements.push(element)
  end

  def pop
    @elements.pop
    return elements
  end
end
A verses B

public class A {
    public int x;
    public int y;
    public int z;
}

public class B {
    private int x;
    private int y;
    private int z;

    public int getX() { return x;}
    public int getY() { return y;}
    public int getZ() { return z;}
    public void setX(int value) {x = value;}
    public void setY(int value) {y = value;}
    public void setZ(int value) {z = value;}
}

Heuristics

Keep related data and behavior in one place

A class should capture one and only one key abstraction
Heuristics

Beware of classes that have many accessor methods defined in their public interface

Do not create god classes/objects in your system

Beware of classes that have too much noncommunicating behavior