95-706

Lecture 1

Object Oriented Software Analysis and Design

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Agenda

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Cheating

- CMU Student Handbook Describes Campus Cheating Policy
- Instructors must specify cheating policy for each course.
- In this Course:

You cheat if you represent someone else's work as your own.

- Each document, presentation, code fragment, etc. should show the name(s) of the author(s) and acknowledge contributions from others.
- Let's not have to mention the subject again.

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Instructor Information

- Richard J. (Dick) Orgass
- Office
  - 3026 Hamburg
- E-mail: orgass+@cs.cmu.edu
  - Checked multiple times per day
    - less frequently on weekends
- Telephone: (412) 268-8408
- Office Hours
  - Monday and Wednesday 2:00-3:30
- Other times: call to find out if I'm available
- www.cs.cmu.edu/~orgass
- Course web sites
  - www.cs.cmu.edu/~orgass/95-706
  - www.cs.cmu.edu/~orgass/90-754 (last term)

Target Audience

- Required course for MISM Students
- Minimum Background
  - One object oriented programming course
  - Ability to write, test and debug OO programs
  - Knowledge of one OO Programming Language
  - Some ability to reason about programs
- Preferred Background
  - All of minimum background plus
  - Working individually or as a team
    - design and implement large OO programs
    - work on a project that failed or almost failed

- **Course directed to students with minimum background**

Expected Workload

- For the target audience:

  - 12 to 15 hours per week on average

Course Objectives

- Learn to manage software development projects
- Learn enough technology to communicate with technical people
- Focus on
  - Use Case Driven Analysis and Design
  - Iterative requirements discovery and modeling
  - Many small steps instead of big steps
- UML as a software modeling language
- Prepare for interviews for software project management position
  - Learn the language that is used
  - Learn to describe projects at the proper level of
    - detail
    - abstraction

Textbooks

- Alistair Cockburn. *Surviving Object-Oriented Projects.* Addison-Wesley, 1998. ISBN 0-201-49834-0.
  - Author is expert OO project manager
  - Written for managers of
    - traditional SW projects
    - new and prospective managers
- Martin Fowler. UML Distilled, Second Edition. Addison-Wesley, 1999. ISBN 0-201-65783-X
  - UML for Managers
  - Designed to enable communication between
    - manager and technical people
    - managers, technical people and customer representatives
  - Assist managers in understanding status of projects

Grading

- Reading and Class Participation 33%
- Midterm and Final Exam 33%
- Homework 34%

Reading and Class Participation

- Reading assignment for each Monday
- Turn in answers to questions passed out with assignment
  - Due at 11:00 am on Mondays
- Students will be asked to present their answers to questions.
  - Assigned the week before assignment is due
- Participation in class discussion
- Attendance

Homework

- Two kinds
  - Project Work
  - Specific Assignments

- Project Work
  - May span several weeks
  - May have intermediate milestones for grading

- Specific Assignments
  - Complete a piece of design work
  - Paper about a specific issue

Exams

- Open book
- Open notes (your own)
- Might be take-home

Grading Appeals

- When a grade is appealed, the entire paper is subject to review for grading errors.
- First level appeal is to meet with the TA who graded the paper.
- If you are unhappy with the TA's decision, deliver your paper together with a written description of the error that was made to the instructor.
  - Instructor may accept your request or
  - Schedule a meeting to discuss your appeal

Communication

- Web site
  - www.cs.cmu.edu/~orgass/95-706
  - contains
    - lecture materials
    - homework solutions
    - some homework assignments (see below)
- News group (BBoard)
  - academic.heinz.95-706 (andrew)
  - cyrus.academic.heinz.95-706
  - Intended Uses
    - Publish Homework Problems
    - Ask and answer questions
    - Discuss issues
    - Students encouraged to ask and answer questions
  - TAs and Instructor will monitor actively

Communication -- II

- E-mail to instructor or TAs
  - private question and answer
  - may be answered in news group/BBoard
  - if we don't want to answer your question, we'll send E-mail telling you.

Syllabus

- Week 1
  - Course Overview
  - Project 1, Object Oriented Programming problem
- Week 2
  - Introduction to UML, Fowler, Ch. 1
  - Basic Concepts of Object Oriented Projects, Cockburn, Ch. 1
- Week 3
  - Outline of Development Process, Fowler, Ch. 2
- Week 4
  - Project Expectations, Cockburn, Ch. 2
- Week 5
  - Use Cases, Fowler, Ch. 3
- Week 6
  - Class Diagrams, Interaction Diagrams, Fowler, Chs. 4, 5

Syllabus -- 2 --

- Week 7
  - Class Diagrams: Advanced Concepts, Fowler, Ch. 6
- Week 8
  - Midterm Review and Exam
- Week 9
  - Selecting and Setting up an OO Project, Cockburn, Ch. 3
- Week 10
  - Getting Started, Cockburn, Ch. 4
- Week 11
  - Making Corrections, Cockburn, Ch. 5
- Week 12
  - Packages, Collaborations, State and Activity Diagrams
  - Cockburn, Chs. 7, 8, 9

Syllabus -- 3 --

- Week 13
  - Advice from Hindsight, Cockburn, Ch. 6
  - Expand to Larger Projects, Cockburn, Ch. 7
- Week 14
  - Rechecking a Case Study, Cockburn, Ch. 8
  - UML and Programing, Fowler, Ch. 11

System Modeling Tool

- Rational Rose -- Professional Edition
  - Available on many cluster machines
    - Ask Con which machines.
  - Widely used in the commercial environment
  - Generates Java and C from models
  - Windows ANT, 95, 98 only

- Rational Rose -- Student Edition
  - Free to students and faculty
  - Limited version of commercial product
  - Maximum of 30 classes per system
  - Windows ANT, 95, 98 only
  - http:///products/rose/academic

Student Introductions

- Your name, a few things about yourself
  - things you enjoy, dislike, etc.

- Software Development Experience
  - What kinds of projects have you worked on?
  - What was your role in these projects?

- Have you been involved in projects that failed?
  - If so, why did they fail, in your opinion.

- Have you been involved in projects that succeed?
  - If so, what were the major reasons for success?