Object-Oriented Analysis and Design

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CSCI 4448/6448 — Lecture 1 — 08/26/2008

A bit about me...

- Associate Professor
- At CU since July 1998
- Ph.D. at UC Irvine (1997)
- Research Interests
 - Software Engineering
 - Hypermedia
 - Web Engineering



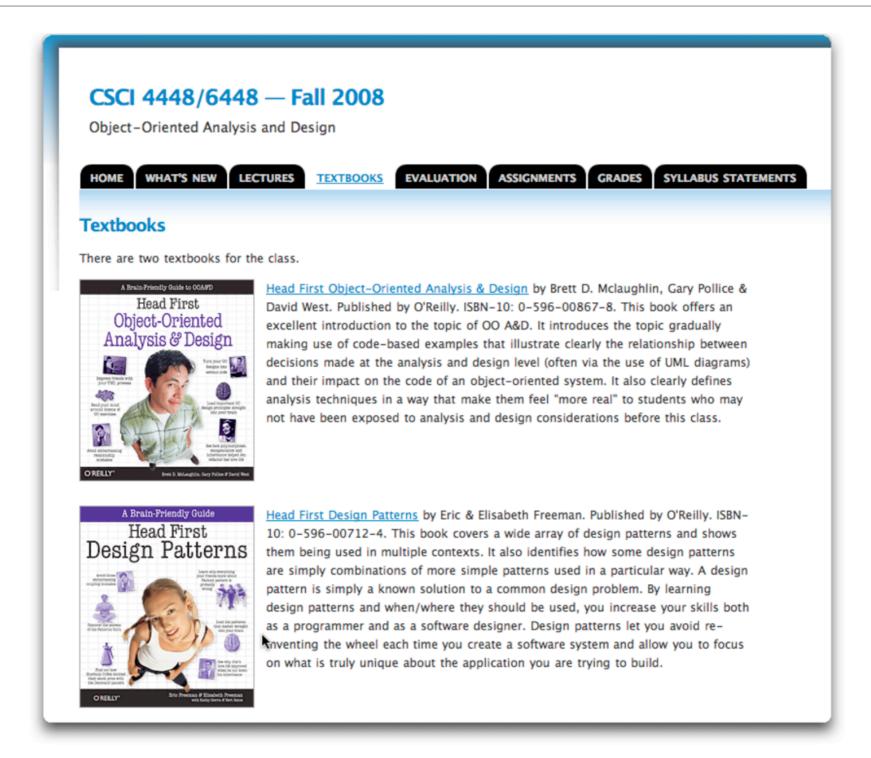
A little bit more...

- 21st Semester at CU
- 7th time teaching CSCI 4448/6448
- Software Development Experience
 - Approximately 16 systems, 30K-100K LOC each
 - Some industry experience with IBM & Unisys
 - Experience with academic/industry collaboration
 - NCAR, NREL, Northrop Grumman, ioSemantics

Office Hours

- ... by appointment
- When meeting with me, we'll use either
 - ECCS 127 (across from the CSEL)
 - Faculty Lounge (across from ECOT 717)

Class Website

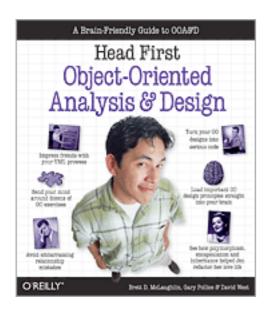


http://www.cs.colorado.edu/~kena/classes/6448/f08/

About the Class Website

- Check the website every day!
 - An RSS feed of the What's New page is available
- The website is your source for
 - class schedule
 - homework assignments
 - announcements
 - etc.

Textbooks



Head First Object-Oriented Analysis and Design



Head First Design Patterns

Head First Series

- Lots of examples
 - Including tight integration of UML and code
- Covers fundamental concepts well
 - Some may question "less than academic tone" but they touch on all the concepts of "more academic" textbooks (with better examples)
- Employs multiple strategies for teaching concepts
- Repetition, Repetition, Repetition!

Class Participation

- I welcome participation by students
 - Feel free to interrupt me during lecture to ask questions!
 - I'm going to work this semester at making lectures more of a conversation
- Stupid Questions No such thing!
- No participation leads to "silent tomb" Boring!
- If I'm speaking too fast, stop me and tell me to slow down!

Teaching Philosophy

- "sage-on-stage" vs. "guide-at-your-side"
- Answering questions
 - Sometimes the answer will be "I don't know!"
- Current Tech
 - I try to incorporate references to current technology in my teaching
 - Ruby, Python, Ruby on Rails, Django, etc.
 - If you encounter a cool new OO-related technique or language feel free to send a pointer to me and I'll try to talk about it during lecture

Bias?

- I don't use Microsoft Windows and so have no experience with
 - .Net
 - C#
 - F#
 - etc.
- However, I'm not "anti-Microsoft" and I will welcome student presentations on Microsoft technology

Goals of the Class

- Provide students with knowledge and skills in:
 - object-oriented concepts
 - OO analysis, design, and implementation techniques
 - object-oriented design methods
 - (aka software development life cycles)
- Students should view OO software development as a software engineering process that has well-defined stages with each stage requiring specific tools and techniques

Course Structure

- First 8 weeks
 - Cover fundamental OO A&D concepts
 - objects, UML, use cases, analysis & design techniques
- Second 8 weeks
 - Cover additional design and implementation techniques
 - design patterns, refactoring, testing, concurrency, etc.

Course Evaluation

- Midterm (30%)
- OO Framework Analysis and Presentation (30%)
 - Teams of 2 to 3 people
- Class Project (40%)
 - Teams of 3 to 4 people
- Roughly 10 homework assignments worth 1 (or 2) extra credit points each
 - These assignments are not required!
 - May involve programming, solving a design problem, answering questions about the assigned reading, etc.

Programming Languages (I)

- Examples will be in Java, Python and Ruby
- OO Programming is NOT a central topic of the class
 - If you have never programmed using an OO language, start working your way through a tutorial:
 - Java: <http://java.sun.com/docs/books/tutorial/>
 - Ruby: <<u>http://tryruby.hobix.com/</u>>
 - Python: <<u>http://docs.python.org/tut/</u>>
 - Many more available online; use your favorite search engine!

I believe that analysis and design are the HARD parts of OO development

Programming Languages (II)

- Assignments
 - You may use any OO language (within reason) when working on your assignments
 - If you pick C#, I may have to meet with you to see you run your code.
 - Please no Object-Oriented Perl!



Moodle

- We will be using a Web-based system called "The Moodle" to submit homework assignments
- You will need to enroll in the Fall 2008, CSCI 4448/6448 course
 - Go to http://moodle.cs.colorado.edu/course/view.php?id=178
 - If you do not have a moodle account, create one
 - Log in
 - Go to the URL above, if you are not taken there automatically
 - Follow instructions to enroll
 - You will need an enrollment key: OOFall2008

Honor Code

- I encourage collaboration in this class via the team-based projects
- Homeworks (and the midterm, obviously) are to be worked on individually
 - As such, the honor code statement will be printed on each homework assignment and the midterm to remind you that collaboration is not allowed on these assignments
- The Student Honor Code applies to classes in all CU schools and colleges.
 You can learn about the honor code at:

<http://www.colorado.edu/academics/honorcode/>

Late Policy

- Assignments handed in late incur a 20% penalty
- Assignments can be handed in up to ONE week after the initial due date (except for the final assignment of the class project)
 - after that you are out of luck...

Syllabus Statements

- The University asks that various statements be presented to students at the start of each semester
 - Disability Accommodations
 - Religious Observances
 - Classroom Behavior
 - Discrimination and Harassment
 - Honor Code
- These statements are on the class website at:
 - < http://www.cs.colorado.edu/~kena/classes/6448/f08/ss.html>

Ken's Corner (Explanation)

- A section of lecture to provide fun pointers to class-related information
 - Some items may be related to software engineering in general
- Will include
 - Quirks and/or cool features of OO programming languages
 - Pointers to topical SE/OO articles
 - Things You Should Know[®]
 - but do not appear in your textbooks

Ken's Corner

- The best way to learn about software engineering, design, and programming is to read the blogs of excellent software developers
- Here are a few that I recommend
 - Joel on Software: <http://www.joelonsoftware.com/
 - Tim Bray's ongoing: <http://www.tbray.org/ongoing/>
 - Wil Shipley's Call Me Fishmeal: <http://www.wilshipley.com/blog/>
 - One of the best developer-written posts EVER
 - http://ridiculousfish.com/blog/archives/2006/05/30/old-age-and-treachery/>
 - Alas this blog is now inactive.
 - Finally, to see developers blow off steam, check out:
 - The Daily WTF: <http://thedailywtf.com/



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First Assignment

- Call my office phone at (303) 492-6003
- In your message:
 - State and SPELL your first and last name
 - State that you are enrolled in CSCI 4448/6448
 - Provide me with a nickname for you and SPELL the nickname
- Nicknames used to post grades on the class website
 - As a result, your nickname should not resemble your name or any of your current nicknames!

Coming Up Next

- Lecture 2 and 3: Introduction and Review of Fundamental Object-Oriented Concepts
 - Read Appendix 2 of the OO A&D book
- Lecture 4: Great Software
 - Read Chapter 1 of the OO A&D book

• Homework 1 will be assigned on Thursday and due the following Thursday