

CS 472/572: Object-Oriented Design Patterns

Instructor

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Meetings

Lectures: TuTh 10:30–11:45 ENGR-103
Office hours: TuTh 11:45–12:45 MEC-302C
by appointment MEC-302C

Catalog Description

Reviews object-oriented design principles, explains the goals and form of design patterns, and examines several well-known patterns.

PREREQ: CS 321.

Goals

The student will be able to explain and employ the basic concepts of object-oriented design patterns:

- understand the meaning and benefits of software reusability
- know the form of a software design pattern
- understand domain-independent versus domain-specific patterns
- understand how to apply a pattern
- identify relationships between patterns
- recognize a taxonomy of several well-known object-oriented design patterns
- understand class patterns versus object patterns

- recognize the value of programming to an interface
- understand class versus interface inheritance
- understand inheritance versus composition
- understand delegation
- understand inheritance versus parameterized types
- distinguish between run-time versus compile-time structures
- perform object-oriented design and programming in C++ and Java

Textbook

- *Design Patterns*, Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides, First edition, Addison-Wesley, 1995, ISBN: 9780201633610.

Other Course Material

This syllabus, lecture slides, assignments, and other material is available on the computers in the Computer Science Lab (ENGR-213/214), served by `onyx.boisestate.edu`, which is remotely accessible, via SSH. It is *not* on the WWW, Blackboard, or elsewhere. It is in our “pub” directory:

```
onyx:/home/faculty/buff/classes/472/pub
```

Grading

At the end of the course, a letter grade is assigned to each student according to rank among classmates, which is determined from numerical scores assigned for performance of these activities:

<i>Activity</i>	<i>Weight</i>
Homework	40%
Exam	25%
Final	35%

Homework

Six homework programs are assigned during the semester. Homework requires students to progressively develop the textbook’s graphical editor, Lexi, in Java. Assignments will be made available online.

Exams

An exam and a final are administered during the semester. They are in-class, open-note, and open-book tests. Computers are prohibited.

Due Dates

Homework is due at 11:59PM, Mountain Time, on the day it is due. Late work is not accepted. To submit your solution to an assignment, login to a lab computer, change to the directory containing the files you want to submit, and execute:

```
submit buff class assignment
```

For example:

```
submit buff cs101 hw1
```

The `submit` program has a nice `man` page.

Makeup examinations are not normally administered.

Scores are posted, via a code you will be sent, near my office, as they become available. You are encouraged to check your scores to ensure they are recorded properly. If you feel that a grading mistake has been made, contact me within two weeks of the date that work is returned. Old scores are not changed.

Academic Integrity

The University's goal is to foster an intellectual atmosphere that produces educated, literate people. Because cheating and plagiarism are at odds with that goal, those actions shall not be tolerated in any form. Academic dishonesty includes assisting a student to cheat, plagiarize, or commit any act of academic dishonesty. Plagiarism occurs when a person tries to represent another person's work as his or her own or borrows directly from another person's work without proper documentation.

If a student engages in academic dishonesty, the student may be dismissed from the class and may receive a failing grade. Other penalties may include suspension or expulsion from the University.

Much more information about academic integrity, including examples of academic dishonesty, is at:

<http://cs.boisestate.edu/~buff/files/www-integrity.pdf>

If you are unsure about a particular behavior, ask your instructor.

Labs

Each student receives an account on the cluster of computers in the Computer Science Lab (ENGR-213/214). The cluster comprises a server named `onyx.boisestate.edu` and a set of nodes with shared home directories. It is remotely accessible, via SSH. The cluster runs the Linux and Windows operating systems, via VMware.

Physical access requires building and room access. After hours building access, and all-hours room access, require an authenticated proximity-type student-identification card.

You are responsible for understanding and obeying lab rules:

<http://coen.boisestate.edu/its/lab-rules>

Schedule

<i>Week</i>	<i>Date</i>	<i>Topic</i>	<i>Assigned</i>	<i>Due</i>	<i>Reading</i>
1	Jan 12 Tue				
	Jan 14 Thu				1
2	Jan 19 Tue				
	Jan 21 Thu		HW#1		2
3	Jan 26 Tue				
	Jan 28 Thu				
4	Feb 02 Tue				
	Feb 04 Thu				
5	Feb 09 Tue				
	Feb 11 Thu				
6	Feb 16 Tue		HW#2	HW#1	
	Feb 18 Thu				
7	Feb 23 Tue				
	Feb 25 Thu				
8	Mar 01 Tue		HW#3	HW#2	
	Mar 03 Thu				
9	Mar 08 Tue				
	Mar 10 Thu				
10	Mar 15 Tue				
	Mar 17 Thu		HW#4	HW#3	
11	Mar 22 Tue	Spring Break			
	Mar 24 Thu	Spring Break			
12	Mar 29 Tue				
	Mar 31 Thu	Exam			
13	Apr 05 Tue		HW#5	HW#4	
	Apr 07 Thu				
14	Apr 12 Tue				
	Apr 14 Thu		HW#6	HW#5	
15	Apr 19 Tue				
	Apr 21 Thu				
16	Apr 26 Tue			HW#6	
	Apr 28 Thu				
17	May 05 Thu	Final: 10:00-12:00			