

CMSC 132: OBJECT-ORIENTED PROGRAMMING II



Course Introduction

Department of Computer Science
University of Maryland, College Park

Course Catalog Description

- Introduction to use of computers to solve problems using software engineering principles
- Design, build, test, and debug medium-size software systems. Learn to use relevant tools
- Use object-oriented methods to create effective and efficient problem solutions
- Use and implement application programming interfaces (APIs)
- Programming done in Java

Things You Will Learn

- Object-oriented software development
 - Modern software development techniques
 - Object-oriented design
- Algorithms & data structures
 - Lists, trees, graphs
- Programming skills
 - Java API, IDE, testing, debugging

Course Is Not Just About Java

- May seem to focus on Java
 - All programming in Java
 - Many interesting Java language features
- Lessons intended to be general
 - Principles should apply to all languages
 - Ways of thinking about design
 - General ideas about software
 - Can translate skills to other languages

Course Is Not Just About Programming

- Software development involves a lot more than programming and debugging
- Developing software that doesn't satisfy your customer, or find a customer, is pointless
- Poor (or no) design will make it hard to modify or reuse your software
 - And you will have to modify it
- Lack of testing, plans, and build process leaves you lost, with no idea how to get back on track
- We have to cover a lot of programming ground, but we will also touch on these issues

Assume You Already Know

- Coding
 - Variables, operators, loops, arrays
- Basic object-oriented programming
 - Classes, methods, inheritance
- Java
 - Class libraries, exceptions
- Tools
 - Eclipse IDE, debugger

Where does 132 fit in?

- CMSC 131
 - Basic programming skills
- **CMSC 132**
 - Software design & basic algorithms
- CMSC 216
 - Low-level programming
- CMSC 250
 - Discrete math & logic
- CMSC 351
 - Analysis of algorithms

Organization

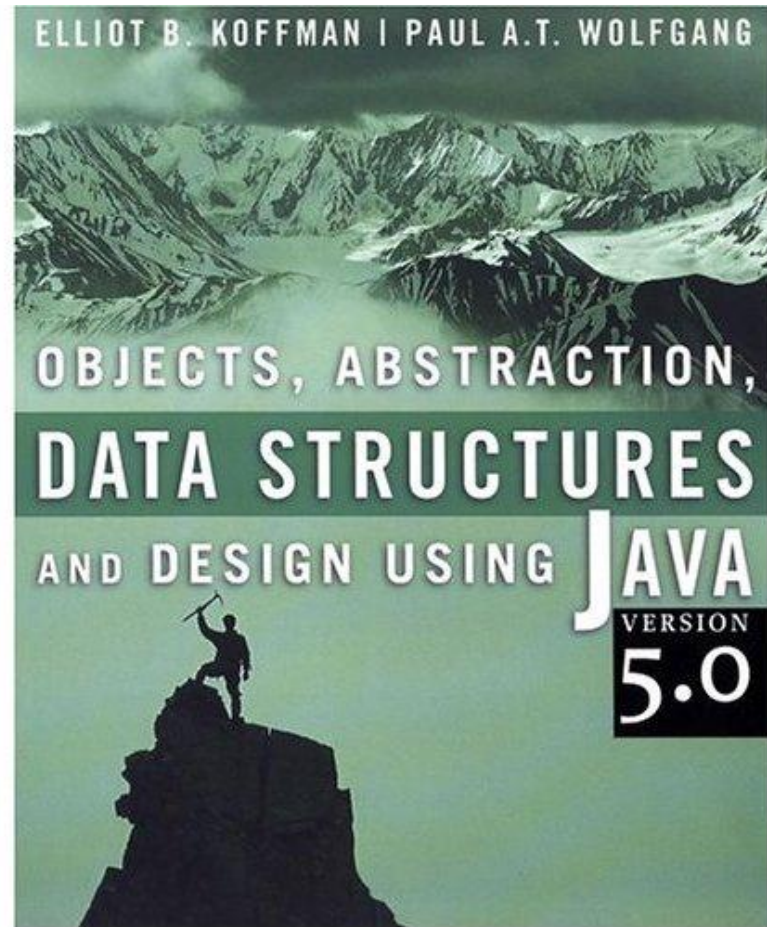
- Class Web Page
 - <http://www.cs.umd.edu/class/summer2012/cmsc132/>

Personnel

- Coordinator
 - Nelson Padua-Perez
 - <http://www.cs.umd.edu/~nelson>
- Class Components
 - Lectures
 - Labs

Textbook

- Recommended
 - “Objects, Abstractions, Data Structures and Design Using Java (version 5.0)”
 - By Elliot Koffman and Paul Wolfgang



Textbook (cont.)

- Recommended
 - “Java Precisely (2nd Edition)”
 - By Peter Sestoft



Projects

- 8 projects
 - Evaluate design, coding, testing skills
 - Tries to involve interesting application areas
 - Networking, user interfaces, data compression
- Late policy
 - Projects due at 6 pm
 - 20% penalty, up to 9am the next morning
 - Plan to complete all projects on time

Projects (cont.)

- Environment
 - Eclipse IDE
 - <http://www.cs.umd.edu/eclipse/>
 - Do not use your cmisc131 workspace (Create a new one).
 - We are using a new repository (information will be provided later on)
- Automated submission & testing
 - Submit server
 - <https://submit.cs.umd.edu>
 - Maintains record of submissions
 - CVS repository
 - May use for research
 - Release testing
 - Can evaluate project using real test cases

Grading

- Based on
 - Projects, quizzes/lab exercises, midterms, final
- Point distribution (roughly)
 - 40% Projects (8)
 - 20% Midterms (2)
 - 15% Quizzes/Lab Exercises (some pop quizzes)
 - 25% Final Exam
- Available on-line
 - <https://grades.cs.umd.edu>

Academic Honesty

- All individual assignments & exams must be done individually (except "open" assignments)
- Do not copy (or allow others to copy) your work in any way
- Submissions will be compared to submissions from current and previous semesters
- Cases of academic dishonesty will be referred to the University's Office of Judicial Programs
- Visit Student Honor Council website for more detailed explanation of academic dishonesty

Excused Absences/Academic Accommodations

- Excused absence does not typically translate into project extensions
- Students requesting reasonable academic accommodations due to a disability must provide a letter from the Office of Disability Support Services
- Please see the syllabus for additional information

Course Advice

- Read the syllabus
- Start projects **early**
 - **Make use of release testing if offered**
- Ask questions
- Read book
- Attend lectures
- Attend labs
- Attend office hours
- Pay attention to re-grade deadlines

Topics Preview

- Algorithms & data structures
 - Asymptotic efficiency
 - Lists, stacks, queues
 - Trees, heaps
 - Sets, maps, graphs
 - Recursion

Topics Preview

- Object-oriented software development
 - Software life cycle
 - Requirements & specifications
 - Designing objects & classes
 - Testing & code coverage
 - Programming paradigms
 - Design patterns

Topics Preview

- Programming skills
 - Java collection framework
 - Exceptions
 - Threads, synchronization
 - Java APIs
 - Graphics User Interfaces (GUI)

Miscellaneous

- Regarding deadline to address grading concerns
 - It will be strictly enforced
 - At the end of the semester we will not address grading concerns for assignments/material already graded
- Regarding Email
- Regarding Electronic Devices

Miscellaneous

- If you are experiencing any problems that affect your performance in this class, please contact us immediately. Usually students wait until the end of the semester when probably nothing could be done
- If for some reason you are considering dropping this course, see us first before making this decision
- Work hard from the beginning of the semester in order to avoid the following type of messages at the end of the semester:
 - Is there any extra credit so I can boost my grade?
 - I am .1 from an A; can something be done?
 - I need to pass this class otherwise I will ...

Miscellaneous

- Some links of interest
 - What is Computer Science?
 - <http://www.cs.bu.edu/AboutCS/WhatIsCS.pdf>
- Information Sources
 - <http://slashdot.org/>
 - <http://www.cnet.com/>

Terpconnect Account

- We are going to use the grace cluster (linux.grace.umd.edu) for the CVS repository. For now, the only thing you need to do is to make sure you have a terpconnect account (we will provide information on how to set the CVS repository later on). If you don't have a terpconnect account, you can request one at:

<http://www.oit.umd.edu/new/>