

CMSC433, Fall 2002
Programming Language Technology and
Paradigms
www.cs.umd.edu/class/fall2002/cmssc433-0201

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Course Goals

To make you a better programmer

- Deconstruct relevant programming problems
- Solve them in an object-oriented style, focusing on
 - Reusability
 - Maintainability (clarity)

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Style

- Interaction
 - This is your course: what do you want to learn?
- Discussion
 - Not just professor/TA to student, but student to student, with regard to ideas, techniques, and solutions
- Learn by doing
 - If you don't put effort into the programming projects, you will learn very little

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Approach

- Methods and styles of (sequential) object-oriented (OO) programming.
 - abstraction, particularly in the use of **interfaces** and **design patterns** to improve reusability and reliability
 - will use the Java programming language exclusively
 - homework projects will build on each other
- Principles and practice of concurrent OO programming. Will cover the two main forms of concurrency:
 - shared-memory multi-threading (Java Thread class), and
 - distributed message passing (Java Remote Method Invocation)

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Topics

- Java (end of next week)
- Programming techniques and tools
- Object-oriented design for sequential programs
 - OO principles
 - design patterns
- Concurrency
 - concurrent programming in Java
 - design patterns
- Distributed programming
 - distributed programming in Java
 - design patterns

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Textbooks

- Primary Texts
 - Bruce Eckel, *Thinking in Java (2nd Edition)*, Prentice Hall, 2000
 - Java primer
 - A complete copy of the book can be downloaded for free
 - Doug Lea, *Concurrent Programming in Java (2nd Edition)*, Addison Wesley, 2000
- Secondary Texts
 - Joshua Bloch, *Effective Java: Programming Language Guide*, Addison Wesley, 2001
- All on reserve in the CS library
- See web page for more useful resources

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Class Accounts

- We will have accounts on CSIC machines
 - Linux cluster; RedHat 7.3-based
 - Lab is in room 3107 CSIC
- Class accounts will be emailed
 - to the email account registered with UMEG
 - so make sure you check or forward that account!
 - if you don't receive an account by Tuesday, talk to TA

Software

- Will be using **Java 1.4**
 - <http://java.sun.com/j2se/1.4/docs/api/index.html>
- May wish to use the **Dr Java** IDE
 - Installed on all CSIC machines
 - <http://drjava.sourceforge.net/>
- Will make use of **JUnit** testing package
 - Starting with hw #2, will include unit tests
 - <http://junit.sourceforge.net/doc/testinfected/testing.htm>

Projects

- Focus on server applications
 - Encourages modular, abstract design
 - Admits natural use of concurrency and distribution
 - Relevant in our connected society
- Start small and build up
 - Develop a sophisticated family of software by course's end

Project Submission

- Projects due at 6pm on due date
 - by Unix time of day
 - you must submit a good-faith effort
 - you can be failed for the course if you do not
- Use online submission procedure
 - Submit early and often
 - Can provide recovery from previous submit
 - Details provided later

Project Commentary

- After the projects are graded, you will be emailed two other (anonymized) submissions
 - respond with commentary on each with regard to the goals and techniques we are teaching
 - you will be graded on the usefulness of your commentary

Tentative Grading Plan

	#	% each	% total
Projects	6	8.33	50
Mid-terms	2	15	30
Final	1	20	20

Discussion and Questions

- Read the newsgroup – csd.cmssc433
 - Only visible from inside UMD
 - For class discussion
 - TA's will read regularly, but may or may not respond. Do not expect real-time responses. This is not a substitute for coming to office hours.
 - **NB:** As in the rest of life, don't believe everything you read!
- Don't cross the line
 - know the academic integrity procedure and follow it (see web page for more)

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Office hours

- Professor Michael Hicks (mwh@cs.umd.edu)
 - TuWTh 10:30-11:30am
 - Or by appointment
- TA: TBD
- Always posted on class webpage:
 - <http://www.cs.umd.edu/class/fall2002/cmssc433-0201>
- Come prepared to provide 2 plausible answers to your question

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The Waitlist (if any)

- I am unlikely to accept anyone from the waitlist
- But if I do, I expect to take in only:
 - CS undergraduate majors with GPA = 3.25 and 330 grade of B or higher
 - CS graduate students
- Send me a note
 - after the first two weeks of class
 - with GPA, grade in CMSC 330, other info

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Stay up to date

<http://www.cs.umd.edu/class/fall2002/cmssc433-0201>

Contains:

- Lecture notes
- Project assignments
- Resources
- And more!

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