

CS 4354: Object-Oriented Design and Implementation
Fall 2015
(Section 001)

Instructor(s): Dr. Vangelis Metsis
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Office Hours: TuTh 10:00am - 11:00am & 3:30pm – 5:00pm

Section Information: CS4354-001

Time and Place of Class Meetings: TuTh 11:00am - 12:20pm, DERR 235

Public course website: http://cs.txstate.edu/~v_m137/cs4354_fall2015

TRACS URL: <https://tracs.txstate.edu/>

We will use the TRACS website for the following:

- Grades (Gradebook2 tool)
- Programming assignment submissions (Assignments tool)
- Lecture notes and Resources (code you can use in your programming assignments)
- The course schedule and assignments will also be posted on the public course webpage.

Description of Course Content: An in-depth study of object-oriented design and implementation issues with emphasis on understanding the life cycle of object-oriented software, Unified Modeling Language (UML), inheritance and polymorphism, and exception handling. In-depth study of Java object-oriented language. Java will be used for implementing the exercises.

Student Learning Outcomes:

At the end of the semester the student should be able to:

1. Read and write code in a non-C++ language (Java)
2. Design, implement, test, and debug programs written in Java.
3. Describe the concepts of inheritance and polymorphism and incorporate them into Java programs.
4. Describe the semantics of exception handling in Java, and use it to write reliable Java code.
5. Read and write Java programs that use persistence (serializable objects).
6. Read and write Java programs that use threads to implement concurrency.
7. Read, design, and draw design models using the Unified Modeling Language (UML)
8. Write Java code that implements the designs specified by UML diagrams.
9. Determine the proper design pattern for a given problem.
10. Design of basic Graphical User Interfaces (GUIs)
11. Use JUnit to perform unit testing on Java code.
12. Use Javadoc to specify the interface (API) of Java objects.
13. Use advanced Java programming tools (Swing, Threads, JDBC)

Course Materials:

- Class slides, notes, and source code (main material to study – posted on TRACS)

No required textbook.

Suggested Textbooks:

- "Object-Oriented Design and Patterns, 2nd Edition", Cay S. Horstmann, ISBN 0-471-74487-5
- "Object-Oriented Software Engineering Using UML, Patterns, and Java, 3/E", Bernd Bruegge and Allen H. Dutoit, ISBN-10: 0136061257
- "Objects First with Java: A Practical Introduction Using BlueJ, 5/E", David J. Barnes and Michael Kölling, ISBN-10: 0132492660

Other recommended books:

- "Object-Oriented Technology from diagram to code with visual paradigm for UML", Curtis HK. Tang, Clarence SW Lau, Ying K Leung, ISBN 007-124046-2
- "Thinking in Java" by Bruce Eckel, 4th edition, 2006, ISBN 0-13-187248-6, Pearson Education (**free online book**)
- "Effective Java " by Joshua Bloch, second edition, Prentice Hall, May 2008, ISBN: 9780321356680 (available in close reserve in ALKEK library)
- "Core Java", Volume 1-Fundamentals, Cay S. Horstmann and Gary Cornell, Eighth Edition, Prentice Hall PTR, 2007, ISBN 0132354764
- "Java concurrency in practice" by Brian Goetz, 2006, ISBN 0-321-34960-1, Addison-Wesley
- "Concurrency: State Models and Java programming" by Jeff Magee and Jeff Kramer, 2nd edition, 2006, ISBN-10 0-470-09355-2, John Wiley & Sons

Grading:

Exercises and Programming Assignments: **40%**

Pop quizzes and class participation: **5%**

Midterm: **25%** (Tue, Oct. 13)

Final Exam (comprehensive): **30%** (Tue, Dec. 8, 2014, 11:00 am)

Class Attending Policy and Homework Policy:

Must attend class and submit homework on time. Excessive absences may influence your final grade. You must finish all individual assignments by yourself. Group assignment will be assigned a single grade. It is important to ensure that everyone in the group contribute to the project.

Late assignments will incur 10% penalty per day, for up to 5 days. After the 5 days, no submission will be accepted.

Make-up Exams: Make up exams will be allowed only to students that were not able to take the original exam due to a health condition justified by the related paperwork from a doctor. Absence due to other reasons will be graded with zero.

Drop Policy:

You must follow the withdrawal and drop policy set up by the University and the College of Science. You are responsible for checking the drop deadlines and making sure that the drop process is complete.

<http://www.registrar.txstate.edu/registration/drop-a-class.html>

***Students will not be automatically dropped for non-attendance.**

Accommodations for students with disability:

Any student with a special needs requiring special accommodations should inform me during the first two weeks of classes. The student should also contact the office of disability services at the LBJ student center.

Academic Honesty:

You are expected to adhere to both the University's Academic Honor Code as described here:

<http://www.txstate.edu/effective/upps/upps-07-10-01.html>, as well as the Computer Science Department Honor Code, described here: [2013 0426 HonestyPolicy CSPPS.doc](#).

- Except where explicitly and specially allowed (such as group project), all work submitted in the class is expected to be your individual work. Plagiarism will not be tolerated and if detected will result in automatic "F" grade.
- Do not include code (or other materials) obtained from the Internet in your assignments (except what is provided or allowed by the instructor).
- Do not email your program to anyone (except your partner or the instructor).
- The penalty for submitting a program that has been derived from the internet or any other non-approved source will be a 0 for that assignment. Violators will be reported to the Texas State Honor Code Council (<http://www.txstate.edu/honorcodecouncil/>).