Texas Tech University
Department of Computer Science

Course Name: Object-Oriented Programming **Number:** 2365 **Semester:** Spring 2019

Instructor Name: Zulfiqar Ali Khan **Office:** Engineering Center 202 **e-mail:** zulfi.khan@ttu.edu
Class room: *Education Building 0350* ***Class Hours: 10****:00 am - 10:50 (M, W, F)*
Instructor Office Hours: *11:00-12:00 (M), 13:00-14:00 (W) or appointment*

TA Name: _____ **Office:** _____ **e-mail:** _____

Catalogue Listing: Prerequisite: CS 2413. Object oriented design and analysis, classes, inheritance, polymorphism data abstraction, and user-interface design principles.

Texts:
The Complete Reference Java 9 edition, McGraw Hill, Herbert Schildt

Course objectives:

The objective of this course is to introduce object-oriented analysis, design, and programming through the usage of objects, classes and user-interfaces.

Key Topics:

Classes
Inheritance
Polymorphism
Object-Oriented Analysis & Design
User Interfaces
Object Interfaces
Abstract Classes
Data Abstraction & Encapsulation

Prerequisites:
CS 2413

Expected Prior Knowledge and Skills In:
The successful student should be proficient in procedural programming and data structures.

Learning Outcomes: Students who have completed this course should have

1. Understanding of object-oriented analysis and design.
2. Ability to use classes, inheritance, and polymorphism.
3. Understanding of user interface design principles.
4. Ability to use user-interfaces and abstractions in programs.

Assessment methods of all of the above: quizzes, exams, assignments, programming labs, and/or projects

Grading Policy:
Final grade for this course will be based on quizzes, homework, project and exams as described below:

- Quiz: 10%
    - Two announced quizzes would be given in the class.
    - Content of missed quizzes/exam may be different. Excuses may be granted due to:
        - sickness, family emergency, etc.
        - Submit an application to instructor in this connection.

    - Review your quiz/assignment/exam with instructor in a designated period if you have any questions about your quiz grade
        - Might not be allowed to review your quiz after one week of display of result.

- Assignment: 10%
    - Two Assignment must be submitted to blackboard by the due date.
    - Late submission will not be graded.
        - Late submission will not be accepted due to your computer crash or lost backup.
    - Will not grade wrong or empty homework files mistakenly submitted to blackboard.
    - You must email your homework to instructor immediately if you cannot submit your Assignment to blackboard because of blackboard's technical problems.
    - Review your Assignment in a week time after display of marks if you have any question about your Assignment grade
        - Might not be allowed to review your assignment grade after the designated period

- Project and Lab: 20 %
    - Project is a team-based project.
        - Teams will be organized in class.
        - Your project grade will be assigned based on your contribution to the project.
    - Instructor will provide the project problem description.

- Exam 60% (Mid-term exam: 10%, Final exam: 50%)
    - The dates for exams will be announced in class.
    - Make-up exam will be given immediately after the exam date, but there may be 10% penalty if you cannot provide acceptable justification to instructor.

- The usual grading scale will be used: **A (90-100), B (80-89), C (70-79), D (60-69), F (0-59)**.
    - This scale is subject to class performance.
- Your email should include the course title (e.g., CS2365 or OO Programming), your name and R-number when you send emails to instructor.
- Instructor may give extra points to students who contribute classes.
    - This will be decided by instructor.
- Beyond the conditions described above, instructor will make all grading decisions.

Ethical Conduct:

Although students are encouraged to discuss ideas and problems with the instructor, and other students, academic dishonesty will not be tolerated. Unless stated otherwise by the instructor, you are not allowed to share code or answers, use or even look at code or answers obtained from online sources, friends, or classmates. **It is your responsibility to educate yourself about actions that constitute academic dishonesty**. If you are not sure whether a specific action is allowed, talk to the instructor before you indulge in it. All submitted code and assignments will be randomly checked for plagiarism. Academic dishonesty of any kind, if discovered, will result in one or more of the following sanctions: a grade of 0 for the corresponding graded item, a grade of "F" in the course, and further action according to the TTU operating procedures: http://www.depts.ttu.edu/opmanual/OP34.12.pdf.

Classroom Civility:

All violations of classroom civility will be reported to the Student Judicial Programs. The Texas Tech University Catalog states: “Students are expected to assist in maintaining a classroom environment that is conducive to learning." In order to ensure that all students gain from time spent in class, **students are prohibited from engaging in any form of distraction**, e.g., reading newspapers (or other articles), working on other courses, and using cell-phones or laptops for calls or messages. If you indulge in any such inappropriate behavior (without explicit consent of the instructor), you will (at the very least) be asked to leave the classroom.

Student with Disabilities:
Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information you may contact the Student Disability Services office in 335 West Hall or 806-742-2405.

Center for Campus Life:
The Center for Campus Life can assist in notifying the campus community of student illnesses, immediate family deaths and/or student death. Generally, in cases of student illness or immediate family deaths, the notification to the appropriate campus community members occur when a student is absent from class for four consecutive days with appropriate verification. It is the student's responsibility for missed class assignments and/or course work during their absence.

Course Schedule: The table (below) provides the initial distribution of topics discussed over the weeks in the semester. **This schedule is tentative and subject to change**. All changes will be announced in class or on the course website (Blackboard). **It is your responsible to attend classes and check the course website regularly to get all change announcements.**

Text Books **Jan 16, 2019-May 07, 2019**

S.No	Java
1.	The Complete Reference Java2 Patrick Naughton Herbert Schildt

Reference Books

S.No	Java
1.	Java: From Control Structures through Objects, 5th Edition Tony Gaddis
2.	Java Programming: A Comprehensive Introduction Bruce Eckel

Week	Topic
1 Introduction 01/16/2019	Object Oriented Concepts: Abstraction, Reusability, Inheritance, Encapsulation; Example Java Program: Classes, Objects, References, Difference b/w Object and references, Methods, Constructor, how to invoke constructor, how to invoke methods.
	Java Environment (NetBeans), First Program, Scanner Class,

	hasNext(), JOptionPane (I/O), Program Debugging : System.out.print
	Byte, short, int, long, float, double, char and boolean data types. Literals,
2 Types of Variables, Visibility 01/23/2019	**Local variable, instance variable, formal parameter, actual parameter, Class variable**
	this keyword, if-else-if, visibility modifiers, private vs public, Method visibility
3 More Types, Methods, Conditional, Assignment#1 01/30/2019	**String data type; Operators:=, +, -, *, /; Order of operations, Mismatched Data Types, Type Casting, Method Declaration and Definition, void and return types, Pass by Values, Pass by Reference, Variable Scope, Mathematical Functions: sin, cos, pow, sqrt, log, If statement, if – else clause, nested if, ?, == and =. relational, Logical operators. Comparison Operators, Boolean operators, operator precedence, switch-case-break-default, Example Programs using class, main method and user defined methods**
4 Loops 02/06/2019	**While, for, do-while, comparison, break, continue, nested loops, variable scope, infinite loops: for, while, do-while; Example programs using class, main, user defined methods involving series**
5 Program Design Issues 02/13/2019	**Architectural Design: Top Down and Bottom Up Design; Introduction to UML Diagrams: Use Case Diagram, Class Diagram, Sequence Diagram; Design Patterns: Adapter Pattern, Observer Pattern**
6 Arrays 02/20/2019	**Single Dimensional Arrays, declaration, assignment, indexes, array creation, Initialization, Array traversal, length variable, Array Example Programs, Bubble Sorting, Searching, Merging, Array as Arguments**
7 Arrays of Object, 2-Dimensioanl Arrays, Assignment#1 Due 02/27/2019	**Arrays of Objects: invoking constructor for each element of array; Passing and Returning Arrays, 2d-Arrays: declaration and initialization, Example of Matrix Multiplication, passing 2d Arrays as arguments**
8 Exam1, Misc. Topics Assignment#2 03/06/2019	**Exam1, String: Methods, problems; Character Arrays; Defining a Package, Package Example; Over Loading, Java File input/Output, File, Streams, Binary versus Text Files, Text I/O, Buffering, Text File Output, PrintWriter, Demo Program, Appending, closing, Buffered Reader**
9 Java Math Class, Exception Handling, Project 03/13/2019	**Math class Methods: max, min, ceil, floor, abs, random; Buzz words: try-catch block, Throwing Exception, Advantages, throw & throws clause, User Defined Exceptions**
10 Inheritance, Polymorphism and Abstract Classes Project	**Inheritance, extends keyword, super and sub-class concepts, Method Overriding, Polymorphism, Abstract Classes, final keyword**

03/20/2019	
11 ArrayList and Vectors 03/27/2017	**Limitations of Arrays, How to Store Objects in Arrays? Java Generics: ArrayList, Vectors**
12 Interfaces and Event Driven Programming 04/03/2019	**Interfaces, Implementing Interfaces, Evolution of Event-Driven Programming, Creating Buttons and Button Handlers, Role of Interfaces in Creating Button Handlers**
13 Text Box, Radio Button, Check Box 04/10/2019	**How to input data in GUI environment, Enabling and Disabling Text Boxes, How to perform Multiple Selections, Difference between check Boxes and Radio Buttons**
14 ListBox and ComboBox 04/17/2019	**Difference between Combo Box and List Box, How to store and retrieve elements from Combo Box and List Box, Searching Elements**
15 Menus without Dialog Boxes 04/24/2019	**Advantages of Menus, JMenuBar, JMeenu, JMenuItem; How to create MenuItem handlers**
16 Menus with Dialog Boxes 05/01/2019 05/07/2019= Last class Final Exam date would be announced in class	**Dialog Boxes, User Defined Dialog Boxes, MenuItems associated with Dialog Boxes, JTable(optional)**

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