

CENG305 : Object-Oriented Programming with Java (Spring2024)

Instructor: Dr. Faruk Tokdemir
TA: Ahmet Atakan

Course Outline	
Week 1	Chapter 1 – Introduction computers and programming, compile and run your first Java program, compile-time and run-time errors To describe an algorithm with pseudocode, flowchart.
Week 2	Chapter 2 – Using Objects Variables, the concepts of classes and objects, attributes and behaviours(methods), Accessor and Mutator Methods, I/O methods, API documentation, objects and object references. GUI examples.
Week 3	Chapter 3 – Implementing Classes implement and test simple methods, use of constructors, instance variables, local variables, javadoc comments, drawing graphical shapes
Week 4	Chapter 4 – Fundamental Data Types Data types, expressions, constants, String operations, formatted output.
Week 5	Chapter 5 – Decisions Selection : if, if-else, switch, nested if, validate user input,
Week 6	Chapter 6 – Loops Iteration: for, while, do-while, nested loops.
Week 7	Chapter 7 – Arrays and Array Lists Declaration, one – two dimensional arrays, processing of arrays, ArrayList class.
Week 8	Midterm Exam
Week 9	Chapter 8 – Designing Classes Class structure , designing good methods, cohesion, Separating Accessors and Mutators, Static Variables and Methods, Importing Packages, Unit Test Frameworks.
Week 10	Chapter 9 – Inheritance Inheritance?, implement subclasses that inherit and override superclass methods, concept of polymorphism, superclass Object and its methods, overriding.
Week 11	Chapter 10 – Interfaces Defining an Interface Type, Variables of Class and Interface Types, Comparable Interface, Inner Classes, Event Handling.
Week 12	Chapter 11 – Input/Output and Exception Handling Read and write text files, command line arguments, try-catch statements, exception types, throw and catch exceptions.
Week 13	Chapter 12 – Object-Oriented Design How to discover new classes and methods To use CRC cards for class discovery. aggregation, and dependency relationships between classes, UML class diagrams
Week 14	Chapter 14 – Sorting and Searching Sorting and searching algorithms, big-Oh notation, performance of algorithms

Note: Syllabus is likely to change based upon the actual progress of the course!

Textbook: Brief Java: Early Objects, 9th Edition, Cay S. Horstmann,
ISBN: 978-1-119-49913-8 December 2018

Link to the student companion site : [Horstmann: Brief Java: Early Objects, Enhanced eText, 9th Edition - Student Companion Site \(wiley.com\)](http://horstmann.com/briefjava/earlyobjects/9thedition/studentcompanion.html)

Link to BlueJ : <http://www.bluej.org/>
BlueJ Tutorial : <https://horstmann.com/bigj2/BlueJManual.pdf>

Link to Oracle JDK and JDK documentation:
<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

1. Introduction to Java Programming, Comprehensive , 10/E, Y. Daniel Liang, ISBN-13: 9780133761313, Pearson, 2015, 1344 pp
2. Java Programming: From Problem Analysis to Program Design, Third Edition by D.S. Malik, published by Course Technology , 2008.
3. JAVA Programming, 6th edition, by Joyce Farrell, published by Course Technology, 2012.
4. OOP Programming with Java by C. Thomas Wu, published by McGraw-Hill, 2010.
5. Intro to Programming with Java, A Problem Solving Approach, 2/e, John Dean, Raymond Dean, 2014, McGraw-Hill
6. Lecture Notes by Faruk Tokdemir cited on the course website (odtuclass.metu.edu.tr).
7. Many other resources on internet :

<https://www.tutorialspoint.com/java/index.htm>
<https://www.w3schools.com/java/default.asp>

Computer Usage : BlueJ

Tentative grading : Midterm (30%), Final (35%) and HWs (20%), Quiz (10%), Randomly taken attend.(5%).

Wednesday 13:30 – 16:30 BMB4

In the class:

- **Cellular phones shall be switched off or shall be set to “flight mode” during the class hour.**
- **You are not allowed to use any sort of computer (smart phone, laptop, smart watches) for any purpose in the class hour**
- **Video and audio recording, web surfing, e-mailing, online chat and/or game playing will not be tolerated. This behaviour is rude and disruptive to the other students in the class as well as to the instructor. If this behaviour occurs, the student(s) responsible may be expelled from the class. if this behaviour is still persisted, you will be given to the disciplinary committee for disrupting the class.**
- **Using any kind of chatGPT application in assignments is strictly prohibited. Those who use it will be treated as cheating.**