



CS 013: Fundamentals of Computer Science I

Term: 2020 Winter Session

Instructor: Staff

Language of Instruction: English

Classroom: TBA

Office Hours: TBA

Class Sessions Per Week: 6

Total Weeks: 4

Total Class Sessions: 25

Class Session Length (minutes): 145

Credit Hours: 4

Course Description:

This course gives a fundamental introduction to the Java programming language, teaching writing, testing and debugging of programs. Students will study the fundamental computer sciences concepts and Java object-oriented programming. This class aims to provide the student a good general understanding of software development and the development and implementation of critical-thinking and logical-reasoning skill sets required for the creation of software solutions.

Course Materials:

1. *Java Software Solutions*, 9th Edition, John Lewis (Author), William Loftus (Author)

Publisher: Pearson; (February 20, 2007)

Language: English

ISBN-10: 9780134462028

ISBN-13: 978-0134462028

2. **Eclipse Integrated Development Environment (IDE), Luna**

<https://www.eclipse.org/downloads/download.php?file=/technology/epp/downloads/release/luna/>



SR1/eclipse-java-luna-SR1-win32-x86_64.zip

Course Format and Requirements:

The course will take place in a computer lab and the course format including lecture, programming project, and in-class discussion. The specific topics that will be covered in the classes are listed in the course syllabus. The class period will consist of an active learning environment. During a majority of the class time, students will be actively working on problems in groups under the instructor's guides.

Attendance

Attendance is mandatory. More than three unexcused absences will result in an automatic reduction in your participation grade, for instance from A- to B+. Your active participation in the class is expected and constitutes part of your grade.

Grading Scale:

A+: 98%-100%

A: 93%-97%

A-: 90%-92%

B+: 88%-89%

B: 83%-87%

B-: 80%-82%

C+: 78%-79%

C: 73%-77%

C-: 70%-72%

D+: 68%-69%

D: 63%-67%

D-: 60%-62%

F: Below 60%

Course Assignments:

Quizzes



There will be 5 quizzes this semester, given during the discussion sections. Each quiz will be on the material covered that week. There will be NO make-ups for quizzes for any reason. All of the quizzes will be closed book.

Midterm Exams

Two in-class, close-book and non-cumulative midterm exams will be given through this course. The midterm exams will be based on the knowledge covered in class. No excuse will be accepted if students do not have legitimate excuses for absence. Physician Statement is required for missing the exam due.

Weekly Projects

There will be five hands-on projects based on course need. It will count for 25% of your grade for the course. The projects will enrich students' knowledge on writing large programs. The score will be given based on the correctness of the program.

Final Exam

The final will be in-class, cumulative and close-book. The final exams will be based on concepts covered in class. Note that the final will not be taken during the normal class times. Exact time and location for final will be announced later.

Course Assessment:

Quizzes	10%
Weekly Projects	25%
Midterm Exams 1	20%
Midterm Exams 2	20%
Final Exam	25%
Total	100%

Course Schedule:

Week	Topics	Activities
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1.	<p>Go through syllabus</p> <p>Chapter 1 Introduction</p> <p>Computer Processing, Hardware components, Networks</p> <p>The Java Programming Language, Program Development, Object-oriented Programming</p> <p>Chapter 2 Data and Expression</p> <p>Character Strings, Variables and Assignments, Primitive Data Types</p> <p>Expressions, Data Conversion, Interactive Programs</p> <p>Graphics, Applets, Drawing Shapes</p> <p>Chapter 3 Using Classes and Objects</p> <p>Creating Objects, The String Class, Packages, The Random Class, The Math Class</p> <p>Formatting Output, Enumerated Types, Wrapper Classes, Components and Containers, Nested Panels, Images</p> <p>Chapter 4 Writing Classes</p> <p>Classes and Objects Revisited, Anatomy of a Class, Encapsulation</p>	<ul style="list-style-type: none">● Quiz 1● Weekly Project
2.	<p>Chapter 4 Writing Classes</p> <p>Anatomy of a Method, Constructors Revisited, Graphical Objects</p> <p>Graphical User Interfaces, Buttons, Text Fields</p> <p>Chapter 5 Conditionals and Loops</p> <p>Boolean Expressions, The <i>if</i> Statement</p> <p>Comparing Data, The while Statement, Iterators</p>	<ul style="list-style-type: none">● Quiz 2● Weekly Project● Review● Midterm 1● Quiz 3



	<p>The Array List Class, Determining Event Sources, Check Boxes and Radio Buttons</p> <p>Chapter 6 More Conditionals and Loops</p> <p>The switch Statement, The Conditional Operator, The <i>do</i> Statement</p> <p>The <i>for</i> Statement, Drawing with Loops and Conditionals, Dialog Boxes</p>	
3.	<p>Chapter 7 Object-Oriented Design</p> <p>Software Development Activities, Identifying Classes and Objects, Static Class Members, Class Relationships</p> <p>Interfaces, Enumerated Types Revisited, Method Design, Method Overloading</p> <p>Testing, GUI Design, Layout Manager, Borders, Containment Hierarchies</p> <p>Chapter 8 Arrays</p> <p>Array elements, Declaring and Using Arrays, Arrays of objects</p> <p>Command-Line Arguments, Variable Length Parameter Lists, Two-Dimensional Arrays</p> <p>Polygons and Polylines, Mouse Events, Key Events</p> <p>Chapter 9 Inheritance</p> <p>Creating Class, Overriding methods, Class Hierarchies, Visibilities</p>	<ul style="list-style-type: none">● Quiz 4● Weekly Project● Review● Midterm 2



4.	<p>Chapter 9 Inheritance</p> <p>Creating Class, Overriding methods, Class Hierarchies, Designing for Inheritance, The Component Class Hierarchy, Extending Adapter Classes, The Time Classes</p> <p>Chapter 10 Polymorphism</p> <p>Late Binding, Polymorphism via Inheritance, Polymorphism via Interfaces</p> <p>Sorting, Searching, Designing for Polymorphism</p> <p>Event Processing, File Choosers, Color Choosers, Sliders</p> <p>Chapter 11 Exceptions</p> <p>Exception Handling, Uncaught Exceptions, The Try-catch Statement, Exception Class Hierarchy</p> <p>I/O Exceptions, Tool Tips and Mnemonics, Combo Boxes, Scroll Panes, Split Panes</p>	<ul style="list-style-type: none"> ● Quiz 5 ● Weekly Project ● Review ● Final Exam
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Academic Integrity:

Students are encouraged to study together, and to discuss lecture topics with one another, but all other work should be completed independently.

Students are expected to adhere to the standards of academic honesty and integrity that are described in the Shanghai Normal University's *Academic Conduct Code*. Any work suspected of violating the standards of the *Academic Conduct Code* will be reported to the Dean's Office. Penalties for violating the *Academic Conduct Code* may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the *Academic Conduct Code*.

Special Needs or Assistance:

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.