

MAHARISHI INTERNATIONAL UNIVERSITY



Fundamental Programming Practices

Discovering the Structuring Principles of Creation

CS 390

Professor:

Dr. Renuka Mohanraj

June 2022

Maharishi's Eighth Year of Invincibility

Global Raam Raj

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CS 390: Fundamental Programming Practices

Discovering the Structuring Principles of Creation

Dr. Renuka Mohanraj

SYLLABUS

"The human brain physiology is the hardware of that cosmic computer, which can create anything through proper programming." -- Maharishi Mahesh Yogi

COURSE OBJECTIVES, ACTIVITIES, AND ASSESSMENTS

Main Objectives of FPP

The FPP course was created to fill gaps in the background of students when they first start their MSCS program; gaps of this kind have been classified into five areas. If you are in the FPP course, it means that the best first step you can take in this program is to strengthen your skills in these areas. The course will help you to:

- Develop skills as a Java developer
 - Develop facility in the object-oriented paradigm
 - Understand the principles behind optimal use of data structures, together with key points about optimal implementation and use in the Java language
 - Become skillful in using the technique of recursion
- Significantly enhance problem-solving skills

This is what you'll learn to do	This is how you'll learn it	This is what will show you've learned it
Java Programming: Tell the computer how to distinguish between different types of data, and how to select the right instructions for a (sub) task (3,5)	By writing programs that use Data types : Primitive types and Object types By writing programs that use Flow Control: Selection, loops, and recursion	Results from Quizzes, and the Midterm examination.
Organize data and functionality that belong together into distinct categories (useful for larger programs) (3,5)	By writing programs that use Basics of OO Programming: Objects, Classes, Inheritance and Polymorphism	Results from Quizzes, and the Midterm examination.
Create a programs with Graphical User Interfaces (GUIs) (3,5)	By writing programs that use Swing : Components, Layout, and Event Handling	Results from Quizzes, and the Midterm examination.
Data Structures:	By explaining and applying (in code) the principles behind	Results from Quizzes, and the Final examination.

Organize data into structures that are efficient for the task at hand (3,5)	the optimal use of data structures By writing implementations of: List, Stack, Queue, Trees and Hash tables.	
Science of Consciousness: Explain the connection between the Science of Consciousness and Programming. (2)	By writing appealing points (with a drawing) that have a Science of Consciousness connection.	A short Essay Exam Questions

*The numbers in parentheses refer to the MUM Essential Learning Outcomes that are best supported by this course objective; they appear in **boldface** in the list below. (highlight in bold those that best apply to your course objectives, activities, and assessments)

1. Holistic development of consciousness and health
2. **Consciousness-Based understanding (Knowledge)**
3. **Creative and critical thinking**
4. Communication
5. **Scientific and quantitative reasoning**
6. Collaboration and leadership
7. Sustainable local and global citizenship

MAHARISHI UNIVERSITY OF MANAGEMENT
CS390 - Fundamental Programming Practices
Discovering the Structuring Principles of Creation

Course Overview Chart - Regular

WEEK		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
WEEK ONE THEME I Fundamentals of Object-Oriented Programming	AM	COURSE INTRODUCTION AND OVERVIEW: The Course Overview Chart & Syllabus Lesson 1 Introduction to Java and IDE Java is an impulse of energy and intelligence	Lesson 2 (Continued)	Lesson 3 Objects and Classes All Qualities of the Unified Field Are Everywhere	Lesson 3 (Continued)	Lesson 4 Recursion The Self-Referral Dynamics of the Unified Field Quiz - 1	Lesson 5 Inheritance and Polymorphism Life is structured in layers
	PM	Short Lab: Hands on training with the IDE Lesson 2 - Fundamental Programming Structures in Java Transcendental Consciousness is the simplest form of awareness	Lab: Solving problems	Lab: Building classes	Lab: Practice programs using class and objects	Lab: Solving recursive problems	Rest
	Eve	Study of Lesson 1 & 2 and do the homework	Study of Lesson 2 and do the given homework	Read Lesson 3 and complete the given homework	Read Lesson 3 and do the given homework	Read Lesson 4 and solve the given problems	Study and practice of week1 topics

WEEK		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
WEEK TWO THEME II Implementation of Object-Oriented Principles	AM	Lesson 5 (Continued)	Lesson 5 (Continued)	Lesson 6 Inner classes Inner class retain the memory of their "unbounded" context	Lesson 7 Building GUIs in Java with Swing The ultimate provider of tools for the creation of beautiful and functional content is pure intelligence itself	Review for Midterm Quiz - 2	Midterm Examination
	PM	Lab: Practice programs	Lab: Practice programs	Lab: Practice with GUI	Lab: Practice programs	Study for Midterm	Rest
	Eve	Read Lesson 5 and complete the given homework	Read Lesson 5 and complete the given homework	Read Lesson 6 and complete the given homework	Read Lesson 7 and develop programs for the given problem	Study for Midterm	
WEEK THREE THEME III Understanding of Data Structures	AM	Lesson 8 - Lists Sequential unfoldment of nature	Lesson 8 (Continued)	Lesson 9 Stacks and Queues Pure knowledge has infinite organizing power	Lesson 10 Binary Search Trees Knowledge is different in different states of consciousness	Lesson 11 Hash Tables Existence becomes consciousness	Lesson 12 Exception Handling Nature is structured in layers
	PM	Lab: Practice programs	Lab: Practice programs	Lab: Practice programs	Lab: Practice programs	Lab: Practice programs	
	Eve	Read Lesson 8 and complete the given homework	Read Lesson 8 and complete the given homework	Read Lesson 9 and complete the given homework	Read Lesson 10 and complete the given homework	Read Lesson 11 and complete the given homework	Read Lesson 12 and complete the given homework
WEEK FOUR THEME IV Handling of Exceptions and Files	AM	Lesson 13 Working with files and Databases The mind is capable of comprehending all of life	Quiz - 3 Review for Final		Final Examination		
	PM	Lab: Practice programs					
	Eve	Read Lesson 12 and complete the given homework	Practice for Final				

OFFICE HOURS, CONTACT INFORMATION AND BIOGRAPHICAL SKETCH

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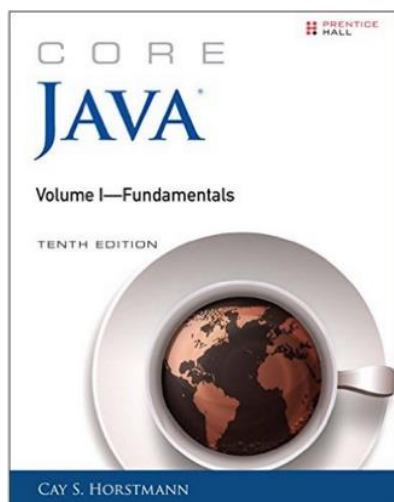
Communicate through Microsoft Teams

RECOMMENDED DAILY SCHEDULE

Class is in session from 10 AM to 12:15 every weekday morning, with the final 15 minutes devoted to a group meditation, and from 1:30 to 3:15 every afternoon, with the last 20 minutes for group meditation. On Saturday, we meet only in the morning and follow the usual weekday format during the morning.

Textbooks

The *strongly recommended* textbook for the course is *Core Java 10th edition* (or even better, the *11th* edition), by Cay Horstmann, available through Amazon Books and Barnes and Noble (used copies are available at reasonable prices). One topic we will cover that is not in Volume 1 is Java I/O – this is covered in Chapter 2 of Volume 2; this chapter will be provided to you free of charge.



From Volume 2:

Chapter 2. Input and Output

In this chapter

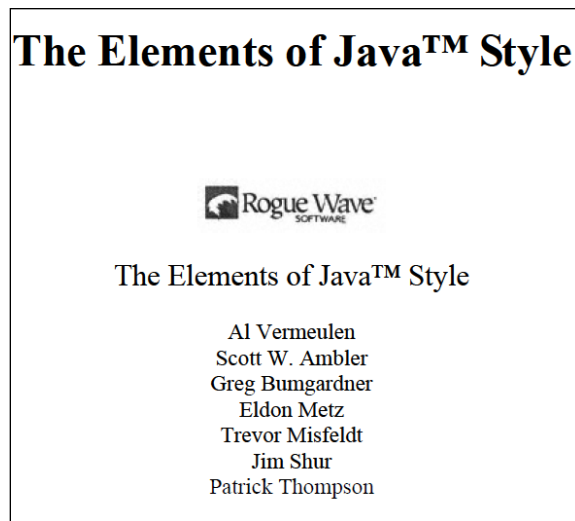
- [2.1 Input/Output Streams](#)
 - [2.2 Text Input and Output](#)
 - [2.3 Reading and Writing Binary Data](#)
 - [2.4 Object Input/Output Streams and Serialization](#)
 - [2.5 Working with Files](#)
 - [2.6 Memory-Mapped Files](#)
 - [2.7 Regular Expressions](#)
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Readings

The *strongly recommended* text will supplement the material given in the lectures. You will find it helpful (and sometimes *necessary*) to read material from relevant sections in order to complete your understanding of the material and to assist you in doing the labs.

Supplementary Readings (not required)

1. Bloch, *Effective Java*, 3rd ed., 2017
2. *The Elements of Java Style*, Scott Ambler. We are using portions of this book in this course for one lab. It will be provided for you free of charge.



List of Lessons [Topics refer through lecture PPT]

- Lesson – 1 - Introduction to Java and IDE
- Lesson – 2 - Introduction to Fundamental Programming Structures in Java
- Lesson – 3 - Objects and Classes
- Lesson – 4 – Recursion
- Lesson – 5 - Inheritance and Polymorphism
- Lesson – 6 - Inner classes
- Lesson – 7 – Building GUIs in Java with Swing
- Lesson – 8 - Lists
- Lesson – 9 – Stack and Queue
- Lesson – 10 – Binary Search Trees
- Lesson – 11 – Hash Table
- Lesson – 12 – Exception Handling
- Lesson – 13 - Working with files and Databases

Course Resources on Sakai : www.online.cs.miu.edu and use Microsoft Teams for the Interactions.

Homework(10%)

I will assign Labs every day to write Java programs. In class, I will give details concerning how assignments should be submitted. Homework is evaluated on an individual basis. If you work with someone else, make sure you understand your own answers – on the exams, the same concepts will reappear. Here is a schedule. Homework should be submitted by the next day after the completion of every lesson.

Assignment
Labs assignments for Week 1 (Lessons 1 – 4)
Labs assignments for Week 2 (Lessons 5 - 7)
Labs assignments for Week 3 (Lessons 8 - 12)
Labs assignments for Week 4 (Lessons 13)

Quiz(In-Person Only)

Three Quiz will be conducted as per the schedule below, including 10%. The Quiz covers the Theory part.

Lesson 1 – 3: Week 1 - Friday

Lesson 4-7: Week 2 – Friday

Lesson 8-12: Week 4 – Tuesday

Exams (Writing on Paper & In-person only)

There will be two exams in the class as a programming test. Each exam has a value of your final grade. Review will be done before the Exam.

Exams	Date Administered	Exam Content	Value
Midterm	2 nd Saturday	Lessons 1– 7	40%
Final	4 th Thursday	Lessons 8-12	40 %

Academic Honesty

Students are expected to submit only their own work. During exams, they must not look at other students' work, discuss exam contents with other students at any time (including bathroom breaks), or attempt to access outside resources (such as the internet or email).

The academic dishonesty policy stated on the Compro website is reproduced here:

Academic Dishonesty: Graduate students caught cheating will receive a grade of NC. A second case of cheating results in suspension from the university. Cheating includes copying from someone else as well as letting someone else copy your materials, or not following the policies during the test (e.g., not using a cell phone at any time; not having notes, etc).

Attendance Policy:

As per the policy you should not miss more than three sessions. (Session means either Forenoon or Afternoon). Inform to the Professor ahead of time if you need an excuse.

Grading Policy

Your final grade will combine your exams, homeworks, and quiz scores. There will be no make-up exams or make-up Quizzes. The highest score you can receive for Professional Etiquette is 0; if you do poorly in the areas of attendance, attitude, or professional appearance, you may lose up to 3 points (3%) in your total score for the course.

Evaluation Modality	Value
Exams	80%
Homework	10%
Quiz	10%

We will use the following grading scale:

Range	Letter Grade	Meaning of Grades
93 - 100	A	Excellent, exceptional
90 - 92	A-	Excellent
87 - 89	B+	Very good comprehension of course concepts and proficiency in course competencies
83 - 86	B	Good comprehension of course concepts and proficiency in course competencies
80 - 82	B-	Basic comprehension of course concepts and proficiency in course competencies
77 - 79	C+	Fair — meets minimal expectations for passing
73 - 76	C	Fair
70 - 72	C-	Fair
0 - 69	NC	No credit — did not attain course objectives at a minimal level

Note: Move on to MPP, your minimum grade requirement should be B(83%) otherwise need to repeat the FPP course.