

MAHARISHI UNIVERSITY OF MANAGEMENT



Fundamental Programming Practices

Discovering the Structuring Principles of Creation

CS 390

Professor:

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Maharishi's Eighth Year of Invincibility

Global Raam Raj

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CS390 - Fundamental Programming Practices
Discovering the Structuring Principles of Creation

Course Overview Chart

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	Lesson 5 Inheritance and Polymorphism Life is structured in layers Quiz - 1
	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 Building GUIs in Java with Swing The ultimate provider of tools for the creation of beautiful and functional content is pure intelligence itself	Lesson 7 Inner classes Inner class retain the memory of their "unbounded" context	Review for Midterm Quiz - 2	Midterm Examination
	PM	Lab: Practice programs	Lab: Practice programs	Lab: Practice with GUI Tools	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 unfolding 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			Common Program Test- FPP/MPP Board		
	Eve	Read Lesson 12 and complete the given homework	Practice for Final	Practice for Program Test			

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 [we will evaluate those skills on the Standard Exam and in labs]
- Develop facility in the object-oriented paradigm [we will evaluate this aspect of learning in the midterm, final, and quizzes]
- Understand the principles behind optimal use of data structures, together with key points about optimal implementation and use in the Java language [we will evaluate this aspect of learning in the midterm and final and in one question on the Standard Exam]
- Become skillful in using the technique of recursion [we will evaluate this skill on the final exam]
- Significantly enhance problem-solving skills [this educational outcome will be tested in labs, midterm, final, and Standard Exam]

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	By writing programs that use Basics of OO Programming: Objects, Classes, Inheritance and Polymorphism	Results from Quizzes, and the Midterm examination.

programs) (3,5)		
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: Organize data into structures that are efficient for the task at hand (3,5)	By explaining and applying (in code) the principles behind the optimal use of data structures By writing implementations of: List, Stack, Queue, Trees and Hash tables.	Results from Quizzes, and the Final examination.
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

OFFICE HOURS, CONTACT INFORMATION AND BIOGRAPHICAL SKETCH

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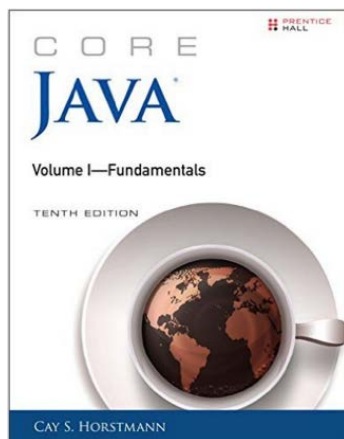
CS Tech Support: cshelpdesk@mum.edu

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 1:15 to 3:05 every afternoon, with the final 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*, 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

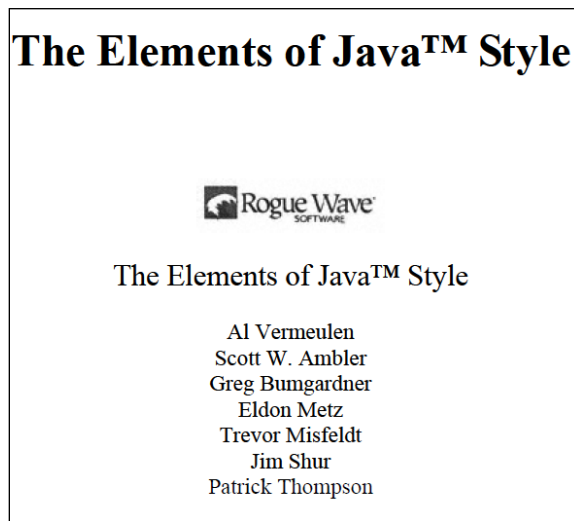
- [2.1 Input/Output Streams](#)
 - [2.2 Text Input and Output](#)
 - [2.3 Reading and Writing Binary Data](#)
 - [2.4 Object Input/Output Streams and Serialization](#)
 - [2.5 Working with Files](#)
 - [2.6 Memory-Mapped Files](#)
 - [2.7 Regular Expressions](#)
-

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.mum.edu => Choose

CS390-2019-09A-09D(RM)

Also all Demo Codes are available in [\\CS5\\public\\Courses\\CS390-FPP\\CS390-Renuka](#)
To access [\\cs5](#) from your laptop use [\\10.10.10.105](#)

Homework

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. Home work should be submitted by next day after 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)

Exams by the Faculty

There will be two exams in the class. Each exam has a value of your final grade. The following table provides additional details:

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

Morning Meditation Bonus Points

Students are expected to attend 60% of the morning meditation sessions. Students who attend significantly more frequently than this will be awarded extra points according to the following table:

70% and above: .5% EC (16 days in a standard block)
80% and above: 1% EC (18 days in a standard block)
90% and above: 1.5% EC (20 days in a standard block)

Final Programming Standard Test

- A two-hour programming test will be given on the afternoon of the last Thursday of class. The test will have two programming problems of easy/medium-level difficulty (by comparison with the FPP labs).

- The programming test will cover data structures and OO programming. Later in the course, I will provide you with more details about the types of questions you can expect on the programming test.
- The programming test will be graded on a Pass/Fail basis by the team in charge of the FPP/MPP program. Students who pass the test will get their grade on the basis of midterm, final, and other evaluations discussed above. Students who do not pass the test will not be allowed to continue on to MPP but, at the discretion of the teacher, may be allowed to repeat FPP.
- The highest grade a student who fails the FPP programming test may receive is "C+".

Reason for the Programming Test. One of the most important objectives of FPP for students is to be able to write Java programs to solve intermediate-level problems. Students need to be able to write functioning programs and to be able to debug them effectively enough to remove compiler and runtime errors. When students have managed once in a while to graduate from FPP without having developed these skills, the result has been that these students continually struggle to catch up in their later courses, and those courses are slowed down considerably because professors need to teach material and skills that were supposed to be covered in FPP. The programming test is a way of ensuring that students' knowledge and skill level have met the necessary standard. The exam is standardized to prevent any unfair bias—every FPP instructor during a block will administer the same standardized test.

Program 1: To test your knowledge on Polymorphism

Program 2: Test your knowledge on Data Structures (Array List, Linked List, Stacks, Queues, HashMap and Hashtable)

We will discuss sample problems during the Review.

Exams	Date Administered	Exam Content	Value	Time & Venue
Common Program Test	4 th Thursday – After Noon 2-4 pm	Program -1 – Polymorphism Program-2- Data Structures	Pass/Fail	TBA

Important Information:

To pass in this course, you have to get pass in Midterm, Final, Quiz, Homework and Common Test.

If you are passed in this program test, your grade will be decided based on your class performance.

If you are failed in this program test or in your Midterm and Final, your grade will be C/C- / C+/NC.

For more Information refer Announcement for FPP Students Concerning the Final Programming Test.pdf in Sakai Resources.

Academic Honesty

Students are expected to submit only their own. 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 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).

Grading Policy

Your final grade will be a combination of your scores on Exams, Homework and Quiz. Your Professional Etiquette score, which is an evaluation of your attendance and professional appearance in class, will count as a “tiebreaker” – borderline grades will be determined using (in part) your professional etiquette score.

Evaluation Modality	Value
Exams	80%
Homework	10%
Quiz	10%
Professional Etiquette	<i>Tiebreaker</i>

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 also need to pass in the Common Programming test.

Course Policy Link

Dress Code :

http://portals.mum.edu/Customized/Uploads/ByDate/2012/December_2012/December_14th_2012/MUM%20Student%20Dress%20Code69610.pdf

Punctuality & Attendance

http://portals.mum.edu/RelId/620772/ISvars/default/Punctuality_and_Attendance.htm

Campus Services

http://portals.mum.edu/RelId/664812/ISvars/default/Campus_Services_Links.htm

Academic Calendar

http://portals.mum.edu/RelId/690805/ISvars/default/Academic_Calendar_2015%E2%80%932016.htm