Grand Valley State University
School of Computing and Information Systems
CIS 163 – Computer Science II
Spring 2020

Instructor Information

	Dr. Zachary Kurmas
Office	C-2-316
Phone	616-331-8688
Email	kurmasz@gvsu.edu
Web	https://www.cis.gvsu.edu/~kurmasz

Course Description

Programming methodology, design and analysis of algorithms, and an introduction to data structures. Examples from a wide range of computing applications will be discussed.

Prerequisite

CIS 162 (Computer Science I) – Previous students of CIS163 suggest a B or better

Course Materials

- Text Book: John Lewis, Peter DePasquale, and Joseph Chase, *Java Foundations – Introduction to Program Design & Data Structures*, 4th edition, or 3rd edition Addison Wesley, 2011.

Course Objectives

After completing the course, students will be able to:

- develop good quality programs in Java consisting of several collaborating classes.
- manipulate fundamental data structures: arrays, strings, linked lists, stacks, and queues.
- solve problems using object-oriented principles (inheritance, polymorphism, abstract and interface classes, containers/collections, and iterators).
- use UML class diagrams to represent design of object-oriented programs.
- develop graphical user interfaces and event-driven programs.
- analyze run-time performance of algorithms using Big-Oh notation.
- use an IDE (Eclipse/NetBeans/IntelliJ/Visual Studio Code) for Java program development.
- interpret technical programming documentation (Java API).

Course Topics

- Arrays
- Inheritance, Interfaces, Polymorphism
- Exceptions
- Graphical User Interfaces
- Recursion
- Searching and Sorting
- Analysis of Algorithms
- Generics and Collections, Lambda and Streams
- Data Structures – Linked Lists, Stacks, and Queues
- Testing and Debugging
- UML Class diagrams

Instructor's Expectations
　　The instructor expects students to:
- attend class **regularly** and **on time**.
- participate in class activities.
- ask questions in class.
- write professional-quality Java code: well-designed, well-formatted, well-commented, and readable.

Instruction Format
　　Lectures will be delivered synchronously using Blackboard Collaborate. All students are expected to participate in lecture and lab during the scheduled time.

Special Needs
　　If there is any student in this class who has special needs because of a disability, please contact Disability Support Services (DSS) at 616-331-2490.

Academic Honesty
　　All students are expected to adhere to the academic honesty standards set forth by Grand Valley State University. In addition, students in this course are expected to adhere to the academic honesty guidelines as set forth by the School of Computing and Information Systems, the details of which can be found at http://www.cis.gvsu.edu/Academics/Honesty/.

　　This course is subject to the GVSU policies listed at https://www.gvsu.edu/coursepolicies/. (See *University Policies* SG 3.04.C for more details.)

Grading
- Last day to drop a course with a grade of **"W"** is **Friday, June 19, 2018, 5:00pm**.
- **IMPORTANT: The instructor reserves the right to invoke the following:** In order to pass this course with a grade of C or better, you must have an average of at least 60% in exams (tests, final exam, and Lab exam).
- Your grade in the course will be determined based on all the work assigned (see table below) in the course using the grading scale shown below.

Programming Project 1	12%
Programming Project 2	12%
Programming Project 3	12%
Test 1 (mid term)	16%
Final Exam	20%
Lab Exam	18%
Attendance/Participation in Labs and Class time	10%

Grading Scale

A	94%	C	73%
A-	90%	C-	70%
B+	88%	D+	67%
B	84%	D	60%
B-	80%	F	below 60%
C+	77%		

Programming Projects

Programming projects require **considerable** amount of time outside of class. I advise you to budget your time properly. You are encouraged to discuss the assignment specifications with your instructor (and with your fellow students). However, anything that you submit for grading must be your own work.

Programming Projects – Submission & Late Policy.

- Late penalty is 20% first day, plus an additional 10% per day after (unless stated in the assignment). Weekend counts as one weekday. Projects will not be accepted after one week late.
- You will be required to demo your project to the instructor.

Course Policies

- All homework and programming projects, unless otherwise specified by the instructor, are to be completed individually. Students are encouraged to consult each other for instructional assistance only.
- The instructor reserves the right to modify course policies, the course calendar, and assignment point values and due dates.

Tentative Schedule

Week	Week Of	Lecture/Topic	Project	Lab / Projects due at start of Lab
1	5/4	CIS 162 Review: Chapters 1 – 5 Using IDE (IntelliJ)	**Assign: Project 1**	Lab 1 Intro to IntelliJ
2	5/11	References (Review) Testing and JUnit Debugging in IntelliJ		Lab 2
3	5/18	Arrays – Chapter 7, Inheritance – Chapter 8	**Due Project 1**	Lab 3
4	5/25 Mem Day	Polymorphism, Interfaces – Chapter 9	**Assign: Project 2**	Lab 4
5	6/1	UML Recursion – Chapter 11		Lab 5
6	6/8	Exceptions – Chapter 10, **review**		Lab 6
7	6/15	Analysis of Algorithms – Chapter 12	**Midterm Exam** **Due: Project 2**	Lab
8	6/22	Analysis of Algorithms – Chapter 12 General helps with projects before break	**Assign Project 3**	Lab 7
9	6/29 (Wed is the 4th)	Searching (Linear and Binary) – Chapter 13 Sorting (Selection, Bubble, Insertion)		Lab 8
10	7/6	Sorting (Quick and Merge) – Chapter 13 Linked Lists – Chapter 14	**Assign: Project 4**	Lab 9
11	7/13	Linked Lists – Chapter 14	**Due: Project 3**	Lab 10
12	7/20	Help with the project Stacks – Chapter 15 Queues – Chapter 15		Lab11
13	7/27	Clean up	**Due: Project 4** **Lab exam.**	**Lab exam.**
		Final Exam: August 3, 2020		

Event	Date
Registration Drop and Add	March 16 - May 8
Payment Deadline	April 24 by 5:00 pm
Classes Begin - 1st 6 and 12 weeks	May 4
100% Tuition Refund Deadline - 1st 6 and 12 weeks	May 8 by 5:00 pm
Last Day to Add or Register - 1st 6 and 12 weeks	May 8 by 5:00 pm
75% Tuition Refund Deadline - 1st 6 weeks	May 15 by 5:00 pm
Memorial Day Recess	May 25
75% Tuition Refund Deadline - 12 weeks	May 29 by 5:00 pm
Drop with a "W" Grade Deadline - 1st 6 weeks	June 5
Classes End - 1st 6 weeks	June 15
Examinations - 1st 6 weeks	June 16-17
Drop with a "W" Grade Deadline - 12 weeks	June 19
Classes Begin - 2nd 6 weeks	June 22
Grades Due from Faculty	June 22 by 12:00 pm
1st 6 weeks Grades Available to Students	June 24
Last Day to Add or Register - 2nd 6 weeks	June 26 by 5:00 pm
100% Tuition Refund Deadline - 2nd 6 weeks	June 26 by 5:00 pm
Independence Day Recess	July 3
75% Tuition Refund Deadline - 2nd 6 weeks	July 6 by 5:00 pm

Event	Date
Drop with a "W" Grade Deadline - 2nd 6 weeks	July 24
Classes End - 2nd 6 and 12 weeks	August 1
Examinations - 2nd 6 and 12 weeks	August 3-4
Grades Due from Faculty - 2nd 6 and 12 weeks	August 10 by 12:00 pm
Grades Available to Students - 2nd 6 and 12 weeks	August 12