Computer Science Department/College of Engineering and Computer Science

CSc 020: Programming Concepts and Methodology II

Spring 2018 Semester Syllabus

Instructor Information

Instructor: Doan Nguyen, Ph.D.
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Course Description

Application of object-oriented techniques for systematic problem analysis and specification, design, coding, testing, and documentation. Semester-long project approach emphasizing larger programs. Managing program complexity using abstraction. Introduction to algorithm analysis and Big-O notation. Advanced language features. Basic sorting and searching algorithms. Recursion. Lecture two hours, technical activity and laboratory two hours.

Prerequisite

- Required satisfactory completion of CSc 15.

Textbook & Course Materials

Textbook: Building Java Programs: A Back to Basics Approach, 4/E or 3/E. By Stuart Reges and Marty Stepp.

Course Goals

Brief List of Topics:

1. Experience designing and developing large, complex programs in the context of a semester-long project.
2. Use of object-oriented techniques to foster abstraction.
3. A disciplined approach to the design, coding, testing and debugging of programs.
4. Use of appropriate tools and techniques for each step of program development.

5. Illustration of the power of abstraction via the use of multiple representations of linear lists.
6. Reinforcement and expansion of object-oriented skills.
7. Basic sorting and search algorithms and their analysis.

Tentative Schedule:

Week	Lecture Topics	Lab Assignments
1	Class Information Java Basic	Introduction. Lab Info.
2	Java statements	Introductory Lab (warming up)
3	Coding design, style, doc. & optimization, Java Classes	Lab 01
4	Java arrays and Strings	Lab 02
5	Object Oriented Analysis and Design, Java Classes	Lab 03
6	List Abstract Data Type (ADT) Testing and Debugging, Midterm Review	Lab 04 (2 weeks)
7	List ADT (continue) Midterm examination	
8	Stack and Queue	Lab 05
9	File I/O, Polymorphism	Lab 06
10	Abstract Classes & Interfaces	Lab 07
11	Sorting & Searching	Final Project (2 weeks)
12	Introduction to Analysis of Algorithms	
13	Recursion	Final examination preparation
14	Java Generic & Exception handling in Java	
15	Course Review, Study Guides, Introduction to other related CS Courses	

Grading and Evaluation - Grades will be based on:

I. Attendance (Surprise quizzes) 15%

II. Programming Assignments (9-10) 40%

II. Examinations

a) One Midterm 20%

b) Final Exam 25%

Notes:
1. To pass the course, you need passing grades for both I, II, & III.
2. Examinations and quizzes cannot be made up.
3. No late work will be accepted.

Grading Breakdown (%):

Range	**Letter Grade**
94-100	A
90-93	A-
87-89	B+
84-86	B
80-83	B-
77-79	C+
74-76	C
70-73	C-
67-69	D+
64-66	D
60-63	D-
59 or Less	F

Other Course Policies:

1. Information in this syllabus is subject to change with notice.

2. Attendance to class and frequent check of email is expected. You are responsible for material presented and announcements made in class or by email. This could include changes to the syllabus, exam dates, etc.

3. Be aware of the school's policy on drops, incomplete, repeats, and ethics/academic honesty.

ETHICS/ACADEMIC HONESTY POLICY:

Any work submitted is a contractual obligation that the work is the student's and for which he/she could be quizzed in detail. Discussion among students in assignments and projects is part of the educational process and is encouraged. No discussion among students is allowed in any exams/quizzes. However, each student must make an effort to do his/her own work in all

assignments and exams. No type of plagiarism will be tolerated except in the case of group work. In that case each student should indicate the part of the work, which was their major responsibility in their final joint submission. Nevertheless, I emphasize any work submitted is a contractual obligation that the work is the student's and for which he/she could be quizzed in detail.
The minimum penalty for even a single incident of cheating brought to the attention of the instructor in this course is automatic failure of the course; additional more severe penalties may also be applied. Note that cheating is grounds for dismissal from the University.

Please refer to the Computer Science Dept. document entitled "Policy on Academic Integrity" (available online via the Computer Science department,www.ecs.csus.edu/wcm/csc/academic/academicintegrity.html).
IT IS THE RESPONSIBILITY OF EACH STUDENT TO BE FAMILIAR WITH, AND TO COMPLY WITH, THE POLICIES STATED IN THIS DOCUMENT. In addition, unless otherwise stated, the use of the following devices during exams/quizzes is prohibited: cell phones, pagers, laptops, and PDAs.

COMPUTER ACCOUNTS AND ELECTRONIC COMMUNICATION:

a) UNIX account: You should obtain a UNIX account on the ECS system for this class if you do not have one. Though not required you might find it useful for some assignments. These are the steps:

a. Use your favorite Browser and Go to www.ecs.csus.edu

b. Click on Computing Services -> ECS Accounts -> Apply for a new ECS account (Windows/Unix)

c. Fill out all required fields

b) Assignment/Homework Submission

Carefully follow the steps below.

1. When you are finished with your work, please submit your program (including program documentation) and program's output via Canvas.
2. Please do not attached your executable program.

Please note: If the attachment is not according to proper format as stated above, it will not be accepted.