Data Structures and Algorithms in Java (CS2)

CIS 256 Syllabus – Spring 2019, CSM

Instructor:	Mounjed Moussalem
Email:	moussalemm@smccd.edu
Optional Lecture:	CIS 279, Wednesday 5:10 pm – 7:50 pm (Building 14 Room 215)
Office:	Building 10 Room 477
Office Hours:	Tues and Thurs 4:00 pm – 8:00 pm (online); Wed 2:00 pm – 4:00 pm (office)
Textbooks:	*Algorithms, 4th Edition,* by Robert Sedgewick and Kevin Wayne, Addison-Wesley Professional (required)
	Data Structures & Algorithm Analysis in Java, by Mark Allen Weiss (optional)

Course Description:

This course covers data structures and programming techniques for computer science majors and computer professionals. Object-oriented approach to a variety of data structures including: arrays, stacks, queues, linked lists, priority queues, trees, dictionaries, maps, hash tables, sets and graphs. The course also covers sorting and searching algorithms and emphasizes algorithmic analysis and the Big-Oh notation. This course conforms to the ACM CS2 standards. (Credit/No Credit, or letter grade option.)

Prerequisite requirement: CIS 255

Student Learning Outcomes:

Upon completion of this course, students should be able to:

1. Apply object-oriented techniques to the implementation of abstract data types
2. Determine the appropriate abstract data type to use for storing data, based on the characteristics of the application
3. Evaluate the trade-offs between static and dynamic implementations of an ADT, based on hardware speed/memory specifics;
4. Characterize an algorithm using Big O notation;
5. Implement abstract data types using both static and dynamic storage techniques;
6. Select an appropriate data sort, based on the characteristics of data to be sorted and the frequency of the sort
7. Employ algorithm patterns to array, linked and recursive structures
8. Construct reliable, robust solutions to problems involving the storage, retrieval and update of large quantities of data

Workload:

You are expected to attend class, keep up with reading, complete all the four programming projects and three exams. One portion of the course grade is participation. In addition to class discussion, and lab exercises, you are expected to participate in the website Q&A Forum regularly. Students are welcome to post questions that relate to the current project, answer other student's questions or respond to questions that I may post. It is quite common for students to approach the problem in various ways, so algorithmic strategies are often discussed (no code). So all together, this means being able to spend 8-10 hours/week minimum on assigned work for success in this class.

Submitting Programming Projects:

For each programming project, submit a zipped file containing all Java source code files, and upload your *.zip file to the Canvas drop box corresponding to the assignment (multiple file assignments are to be zipped first). Programming assignments will be graded on program correctness, documentation, and style. Exams will focus on recent material but may also cover material from the beginning of the semester. The exams will be based on class lectures as well as the textbook and techniques you have used in the related programming assignments.

There are **NO** makeup tests. There will be two exams, a midterm exam and a final exam.

Grading: Your grade will be determined by the following:

(A) Assignments and Programming Projects (45%)

(B) Exams (25% + 30% = 55%)

Grades will be assigned according to the following scale:

% needed for	this grade
90	A
88	A–
85	B+
80	B
78	B–
75	C+
67	C
60	D
< 60	F

Please keep all graded papers until you have received your official grade report. If there is any dispute over a recorded score, you must produce the graded paper. This course does allow "pass/no pass" grading. You must maintain a "C" average to receive credit for this course.

Plagiarism, Collusion or Cheating:

Plagiarism occurs when a student misrepresents the work of another as his or her own. Plagiarism may consist of using the ideas, sentences, paragraphs, or the whole text of another without appropriate acknowledgement, but it also includes employing or allowing another person to write or substantially alter work that a student then submits as his or her own.

Any assignment found to be plagiarized collusion in an exam will receive an "F" grade. There is Zero Tolerance for plagiarism and cheating. All instances of plagiarism will be reported for possible further discipline.

Statement on Equity:

The faculty at College of San Mateo affirms that students are entitled to an equitable learning environment that celebrates their voice, fosters their agency, and develops their capacity for self-advocacy, and that is free of unfair practices. If you feel you are in an environment that is not conducive to your learning or you want to learn more about educational equity, please come talk to me. You may also contact CSM's Director of Equity (collegeofsanmateo.edu/equity) to explore your options.

Please see the "Addendum from the Dean's Office", also available through the "Canvas Syllabus" section.

Student Conduct:

Students enrolled in the Colleges of the District are expected to conduct themselves as responsible citizens, and in a manner compatible with the District and College function as an educational institution.

Students are also subject to civil authority and to the specific regulations established by each College in the District. Violators shall be subject to disciplinary action, including possible cancellation of registration, and may be denied future admission to the Colleges of the San Mateo County Community College District.

Disrespectful, disruptive and/or dishonest behavior will not be tolerated, will result in removal from one or more class sessions and may result in disciplinary action. For more information on prohibited actions, please refer to the Student Conduct section in College of San Mateo's Academic Catalog.

Immediate Disciplinary Actions:

1. Warning – A faculty or staff member may give notice to a student that continuation or repetition of specified conduct may be cause for further disciplinary action.
2. Temporary Exclusion – a faculty or staff member may remove a student who is in violation of the guidelines for student conduct for the duration of the class period or activity during which the violation took place and, if necessary, for the next class session.

Disability Accommodation:

Whatever action is required from moving desks to changing classrooms. New students entering college who need assistance should contact the Disability Resource Center for a pre-enrollment interview to determine support services needed. The DSPS Program provides support services and accommodations to students with verified physical, psychological and specific learning disabilities. New students entering college should contact the Disability Resource Center.

Drop by or call the Disability Resource Center

Location: College Center Building 10, Room 120
Telephone: Laura Skaff: (650) 574-6438
Email: skaffl@smccd.edu
Fax: (650) 574-6434
http://collegeofsanmateo.edu/dsps/

Smoking Policy:

It is the policy of San Mateo County Community College District to provide a safe learning and working environment for both students and employees. It is recognized that smoke from cigarettes, pipes and/or cigars is hazardous to health; therefore, it is the intent of the District to provide a smoke-free environment to the greatest extent possible. To achieve this goal, smoking will be limited to parking lots only. There is no smoking on the campus itself.