**Course Syllabus**

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| **Introduction to Data Structures Using Java** |

1. **COURSE information**

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| Course Number & Name: | CIS 044 |
| Section Number: | 71031 |
| Semester & Year: | Fall 2019 |
| Lecture & Lab: | Lecture: Saturday 09:00AM–12:10PM, GC-208, Lab: online |
| Midterm Exam Date and Time: | October 19, 2019, 9:00AM, GC-208 |
| Final Exam Date and Time: | December 14, 2019 9:00AM, GC-208 |
| Grades: | Pass/No pass option available |
| Prerequisites: | None |

1. **INSTRUCTOR information**

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| Name: | Dr. Maher Mneimneh |
| E-mail: | [mahernm@gmail.com](mailto:mahernm@gmail.com) |

1. **COURSE DESCRIPTION**

This is an advanced course in the Java Programming Language. We will study basic data structures such as stacks, dynamic arrays, lists, and trees, and their implementation. We will also covers basic algorithm analysis techniques (Big-O notation and recurrences), and basic algorithms for searching and sorting. We will also briefly cover basic software engineering concepts to give you a feel for developing large software applications in the real world.

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| 1. **REQUIRED COURSE MATERIAL**   Data Structures and Abstractions with Java, 4thedition, by Frank Carrano     1. **Optional references**   Java:  Java How to Program, Deitel and Deitel (beginner)  Core Java Volume 1 – Fundamentals, Cay Horstmann (intermediate)  Data Structures and Algorithms:  Data Structures and Algorithms in Java, Michael T. Goodrich and Roberto Tamassia  Programming Abstractions in Java, Eric Roberts  Algorithms, 4th Edition, Robert Sedgewick and Kevin Wayne  Think Data Structures: Algorithms and Information Retrieval in Java 1st Edition, Allen B. Downey |
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1. **STUDENT LEARNING OUTCOMES**

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| - Students will demonstrate the ability to use arrays, dynamic arrays and collection of classes in programs. |
| - Students will demonstrate the ability to design, code and execute Java programs using different data structures, such as stacks, trees, queues and linked lists. |
| - Students will demonstrate write programs using searching, sorting and recursion algorithms. |

1. **TENTATIVE COURSE OUTLINE**

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| **Week** | **Lecture** | **Reading** | **Lab** |
| 1 | Course Orientations and Java Review | Appendix A, B, C, F | - |
| 2 | Stacks and Stack Implementations | Java Interlude 1, Chapters 5,6 | Lab 1 |
| 3 | Algorithm Efficiency and Recursion | Chapters 4,7 | Lab 2 |
| 4 | Queues, Deques, Priority Queues | Chapters 10,11 | Lab 3 |
| 5 | Lists and List Implementations | Chapters 12,13, 14 | Lab 4 |
| 6 | List Iterators | Java Interlude 5, Chapter 15 | Lab 5 |
| 7 | **Midterm exam** | - | - |
| 8 | Searching and Sorting | Chapters 18,8 | Lab 6 |
| 9 | Faster Sorting Algorithms | Chapter 9 | Lab 7 |
| 10 | Dictionaries | Chapters 19, 20 | Lab 8 |
| 11 | Trees and Tree Implementations | Chapters 23,24 | Lab 9 |
| 12 | Binary Search Trees and Heaps | Chapter 25,26 | Lab 10 |
| 13 | **Non-Instructional Day** | - | - |
| 14 | Balanced Search Trees | Chapter 27 | Lab 11 |
| 15 | **Final exam** | - | - |

1. **GRADING**

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| Quizzes (Problem Sets) | 15% |
| Final exam | 30% |
| Midterm exam | 25% |
| Labs | 25% |
| Attendance/Participation | 5% |

1. **CLASS ATTENDANCE**

Students are expected to attend all sessions of each class.

Instructors may drop students from class if they fail to attend the first class meeting, or when accumulated unexcused hours of absence exceed ten percent of the total number of hours the class meets during the semester. Moreover, an instructor may drop from the class any student who fails to attend at least one class session during the first three weeks of instruction.

**FACULTY ABSENCE**

If the instructor is not in attendance after 20 minutes from the scheduled start time of class, the class is cancelled and the students may leave.

1. **CHEATING POLICY**

Dishonesty includes but is not limited to in-class cheating, out-of-class cheating, plagiarism, knowingly assisting another student in cheating or plagiarism, or knowingly furnishing false information to college staff, faculty, administrators or other officials. Following are definitions of in-class cheating, out-of-class cheating, plagiarism, and furnishing false information. These are not all-inclusive and the list itself is not meant to limit definition of cheating to just those mentioned.

a. In-class cheating: during an examination or on any work for which the student will receive a grade or points, unauthorized looking at or procuring information from any unauthorized sources, or any other student's work.

b. Out-of-class cheating: unauthorized acquisition, reading or knowledge of test questions prior to the testing date and time; changing any portion of a returned graded test or report and resubmitting as original work to be regraded; or presenting the work of another as one's own for a grade or points.

c. Plagiarism: unauthorized use of expression of ideas from either published or unpublished work(s) as a student's own work for a grade in a class. This also includes the violation of copyright laws, including copying of software packages.

d. Furnishing false information: forgery, falsification, alteration or misuse of college documents, records, or identification in class or in laboratory situations.

1. **cODE OF STUDENT CONDUCT**

It shall be the policy of the District to enforce a student code of conduct the purpose of which is to promote and maintain orderly conduct of a responsible student body in a manner compatible with the District and College function as an educational institution (Education Code 76030). <http://www.missioncollege.org/student_services/student_code.html>

1. **DISABILITY STATEMENT**

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact DISC (Disability Instructional Support Center) located in S2-201 (408-855-5085 or 408-727-9243 TTY) to coordinate reasonable accommodations for students with verifiable documentation.

ADA Statement: The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation required that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact DISC (Disability Instructional Support Center) located in S2-201 (408-855-5085 or 408-727-9243 TTY).

<http://www.missioncollege.org/depts/disc/index.html>

1. **SAFETY/EMERGENCY**

According to Mission College guidelines, you have certain responsibilities when emergency procedures are initiated:

“It is the student’s responsibility to know the evacuation procedures, evacuation route, and assembly area for this classroom. In case of an emergency, you are to follow the directions of your instructor. When directed to evacuate the classroom, *be sure to take all of your belongings when you leave* and remain with your class in the assembly area until you receive further directions.”

Additionally, the Mission College Facilities and Safety Committee offers the following advice:

"Mission College is serious about safety and we urge you to increase your awareness of some basic emergency preparedness procedures while on campus.   Here are some key things you should know:  
Locate (in every classroom):

* Classroom emergency phone
* All evacuation exits from your classroom and the fastest way out of the building without using ANY elevators - Also know an alternate route in case your first choice is blocked.
* Designated assembly area for your building (map on classroom wall)
* Emergency Procedures for Campus Safety chart (on classroom wall)
* Nearest fire extinguisher and first aid kit

*WVM-Alert*  - Emergency Notification   
*Free* WVM-Alert will text, email and call you to alert you to campus emergency situations. Sign in to [www.wvm.edu/emergency](http://salsa.missioncollege.org/malchow/stories/redir.aspx?C=76d387f5595d4c67b1d54d53002cf169&URL=http%3a%2f%2fwww.wvm.edu%2femergency" \t "_blank) and give us your contact information ASAP!  If you don't sign up, you won't be notified!

1. **FEES**

All fees are due and payable at the time of registration. Mission College will be enforcing the Pay-to–Stay registration payment policy effective Fall Semester 2011. This is the policy that allows Admission and Records to drop students for non-payment of fees. If the payment is not made at the due date, the student will be dropped from all classes for which they are currently registered.

Holds will be placed on students’ records for fees and any other financial obligations owed to the college. Mission College will not allow a student to re-register in the college nor will the college forward transcripts or any other records to other institutions when those students have holds on their records. Degrees and certificates will also be held until all outstanding fees have been paid or cleared.

**Instructional Material Fee**

It is the policy of the West Valley-Mission Community College District that the Governing Board may require students to provide instructional and other materials required for credit and non-credit courses, provided that such materials are of continual value to a student outside of the classroom setting and provided that such materials are not solely or exclusively available from the District.

1. **TUTORING INFORMATION**

**General Tutorial Center**: Upon referral by an instructor or a counselor, students can enroll in the Supervised Tutoring course, IS 947, where they can receive assistance on the basis of a learning need. The tutoring is available for all subjects (for Math tutoring please visit the Math lab, S2-401). Tutoring is provided at no charge by qualified, trained tutors. Tutors can give students feedback on their course work, help them understand assignments and provide students strategies for improving their learning skills.

**English-as-a-Second Language Lab:** Multi-level computer, video and audio tape, or print materials for ESL students are available in the center. These learning materials help non-native speaking students increase skills in writing, grammar, listening, reading vocabulary and pronunciation of standard American English in preparation for the workplace or college study. Students in the ESL laboratory can also participate in workshops and conversation groups.

**Reading Lab:** Reading and study skills are developed in the Reading Center with the creation of individualized, self-paced and multilevel programs for students. Multimedia computer software and high interest instructional materials are available to address students’ needs. With the help of specially trained instructors, students can increase their skills in many areas, including: reading comprehension, speed reading, study skills, vocabulary, phonics, and spelling.

**Mathematics Learning Center (MLC)**

The Mission College Mathematics Department and the Mathematics Learning Center are committed to student success. In particular, the MLC offers educational support by offering numerous resources and services to all Mission College students with specific needs in the subject of mathematics. The MLC is a learning community where students come together to help and support each other in their mathematics course(s).

MLC services are free and available to registered Mission College students either currently enrolled in mathematics course(s) or with a desire to review previously studied material. Tutoring is conducted in several languages by faculty, staff, and trained peers who have excelled in the subject of mathematics. The Mathematics Learning Center is conveniently located on the 2nd floor of the main building in room S2-401. Students who are interested in receiving services, becoming a tutor, or having additional questions should stop at the center, visit our website at www.missioncollege.org/depts/math/mathhelp.asp, or call us at (408) 855-5320.

1. **THE FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)**

(20 U.S.C. § 1232g; 34 CFR Part 99) is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. For additional information, you may call 1-800-USA-LEARN (1-800-872-5327) (voice). Individuals who use TDD may call 1-800-437-0833.

1. **SEXUAL HARASSMENT AND SEX DISCRIMINATIO**N

In accordance with Title VII Section 1604, and Title IX of the 1972 Education Amendments, it is the policy of the West Valley-Mission Community College District to provide an educational, employment and business environment free of unwelcomed sexual advances, requests for sexual favors, and other verbal or physical conduct or communications constituting sexual harassment and/or sex discrimination as defined and otherwise prohibited by Federal and State law. Complaints by students or employees should be directed to Associate Vice Chancellor of Human Resources. The telephone number is (408) 741-2131.

1. **MISSION COLLEGE IS A NO-SMOKING AND DRUG-FREE CAMPUS**

The West Valley-Mission Community College District policy 5.18.1 prohibits “the unlawful use, distribution, sale, or possession of alcohol, narcotics, dangerous or illegal drugs, or other controlled substances, as defined in California statues, on District property or at any function sponsored by the District or colleges.” Also, the campus community voted it’s preference for a non-smoking environment, and the decision is reflected in District policy: The College’s non-smoking policy is enforced in all areas except for campus parking lots.

1. **CODE OF STUDENT CONDUCT**

The college has an obligation to specify those standards of behavior essential to its educational mission and campus life. The students who are in violation of the Code of Student Conduct are subject to disciplinary sanctions which apply at all times on campus as well as to any off-campus functions sponsored or supervised by the college.

1. **GRIEVANCE PROCESS**

The grievance process is a formalized process to ensure the timely resolution of conflict at the lowest possible level. The first step is the informal resolution stage which involves the student who has a complaint and the staff member or specific group who is the other party in the grievance. The student must notify the staff person or representative of a group that she/he wishes to make an appointment for an informal meeting to review an action within ten (10) days of its occurrence. In the absence of the instructor or staff person and after a good faith effort to make contact, the grievant may directly contact the department chair. Additional information is available from the Vice President of Student Services.

1. **POLICY FOR COURSE REPETITION**

Title 5 code 55040: District Policy for Course Repetition. A student may repeat any course in which a substandard final grade (D F, NP, or W) was earned. A course may be repeated only once under this policy for a total of two attempts. A student wishing to repeat a course for a 3rd attempt will be required to submit a Student Petition Form.