CSC 300 Spring 2020   **Data Structures I**

Instructor: Dr. Guy. Zimmerman   gzimmer3@depaul.edu
Virtual Office Hours: TBA

Course Description
This is the first course in a two-course sequence on data structures using Java. The course introduces basic Java programming, reviews recursion, introduces asymptotic notations, and focuses mainly on linear data structures including arrays, linked lists and their variants, stacks and queues, and data structures supporting disjoint-set operations. The implementation of the basic operations on each data structure are discussed and analyzed in terms of their efficiency. The applications covered highlight and exploit the unique characteristics of the data structures, and emphasize problem solving and recursive thinking.
Prerequisite(s): CSC 242 or CSC 243

Course Objectives
   To develop a permanent understanding of:
- Basic OO programming techniques
- Debugging and testing programs
- Analyzing program correctness and performance
- Iterative and recursive solutions to problems
- Linked lists and resizable arrays
- Stacks, Queues, Heaps
- Union-find
- Sorting

Textbooks
   Algorithms 4e , Robert Sedgewick and Kevin Wayne, Addison-Wesely 2011
   Core Java SE for the Impatient, Cay Hortsman, Addison-Wesley 2017.
   See Resources tab in course D2L site for additional details about textbooks.

Discussion Platform
The course discussion platform provides an opportunity to discuss course concepts and ask/answer questions. This is particularly great for students that miss live meetings. Whether you have questions from recorded presentations or otherwise, post your questions on the discussion platform. Everybody is encouraged to discuss and reply to the questions, however, do not send messages that demonstrate non-academic or unprofessional attitude. Respect each other's opinions and do not send messages that are not related to the course. The instructor will be following up with a reply to each discussion or question as soon as possible, within 24 hours in general.

Assessment: Your grade in this course will be determined from the percentage of total points you earn from the course assignments listed in the table below. There are two options for how the assignment scores will be weighted; you will automatically receive the higher of these two weightings. The substantive difference between the two is that option 2 does not require any active learning exercises.

Item	Option 1 Weight	Option 2 Weight
Midterm	25%	25%
Final Exam	25%	30%
Homework Assignments	30%	30%
Active Learning Exercises	10%	0
Quizzes	10%	15%

Range	Grade
90% - 100%	A
80% - 89.9%	B
70% - 79.9%	C
60% - 69.9%	D
Below 60%	F
+/- grades will be given at the high/low ends of each range (cutoff: 3%)	

Exams: The midterm is worth 25% of your course grade. The final exam will be comprehensive and you must get at least 60% on the final exam to pass the course. Exams must be virtually proctored - the default system will use the LockDown Browser + Respondus system. See course D2L site for details. Alternative proctoring will be arranged on an as-needed basis.

Homework Assignments: There will typically be a homework assignment every week. You will submit your solution within D2L. Late submissions, up to 24 hours, will be accepted but will incur a 20% penalty. Submissions more than 24 hours late will not be accepted. Submission with compilation errors will typically incur a penalty of 50%; it will usually be better to submit something partially correct that runs, as opposed to something that does not compile. Grading rubrics will typically be attached to all programming assignments; you are encouraged to review these rubrics to help you understand how your work

will be graded. To allow for the variety of unexpected life-circumstances that we all commonly experience, the lowest homework score will be dropped.

The purpose of the homework assignments is to practice programming skills and to gain understanding of the underlying data structures and associated algorithms; these skills & concepts will be tested on exams. It is okay to seek help from others - the goal being to help you better understand how to solve the problem. You should include a credit comment "I got help on part X & Y" in the header comment section of your source code. It is not acceptable to submit work that is largely a copy/variation of someone else's work. Likewise, working together with someone on the entire assignment is NOT acceptable. You may be asked to complete a code-review with the instructor to demonstrate for understanding any work that you submit for credit.

Active Learning Exercises, Quizzes:
Active learning exercises are intended to help engage you (actively) in learning the course material. You will typically have multiple opportunities each week through which you can receive active learning exercise credit. A list of acceptable activities will be available in the course D2L site. Active learning exercises & quizzes may not be made up. However, to allow for the variety of unexpected life-circumstances that we all commonly experience, the lowest weekly ALE score and the lowest weekly quiz score will be dropped.

Tentative Schedule

Week		Topic ( ) Algorithms textbook reference
1	Mar 30 - Apr 5	Java and Eclipse; Arrays, Iteration and Functions (1.1)
2	Apr 6 - Apr 12	Recursion and Intro to Object Oriented programming (1.1,1.2)
3	Apr 13 - Apr 19	Linked Structures, Queues, Stacks (1.2,1.3)
4	Apr 20 - Apr 26	Mutating Linked Structures (1.3)
5	Apr 27 - May 3	Intro to Analysis of Algorithms (1.4)
6	May 4 - May 10	Union Find (1.5)
	TBD	Midterm Exam
7	May 11 - May 17	Union Find (1.5)
8	May 18 - May 24	Elementary Sorts (2.1)
9	May 25 - May 31	Mergesort, QuickSort and Comparators (2.2, 2.3)
10	Jun 1 - Jun 8	Priority Queues and Heaps (2.4)
11	TBD	Final Exam

Communication/Email:
- Please include *CSC300* in email subject lines and your full name in the body. It is not necessary to send "thank you" emails.
- If you are asking for help with code, please attach the entire source code file and be as specific as you can about what the issue is (line number(s), syntax, runtime) and what you have already tried.
- To minimize email traffic, the instructor will utilize the News feature of D2L for general announcements and use email only for more urgent notices. You can use the notifications settings in D2L to automatically send you email in the event of changes to the course D2L site (e.g. a new News item, changes to course grades).

Absence Notifications
Should a student need to be absent from class for a medical or personal reason, the Dean of Students Office can notify faculty of absences not exceeding five days. For additional information, please see: http://offices.depaul.edu/student-affairs/support-services/academic/ Pages/absence-notification.aspx
The absence notification does not mean the student is excused from course material, assignments or exams. It is ultimately up to each professor to decide what, if any, accommodation can be provided in light of this absence. It is the student's responsibility to follow up with the faculty member to inquire about such accommodations.

Academic Integrity and Plagiarism
This course will be subject to the university's academic integrity policy. More information can be found at http://academicintegrity.depaul.edu/. If you have any questions be sure to consult with your professor.

Changes to Syllabus
This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under News in D2L and sent via email.

Academic Policies
All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading, and incompletes can be found at: http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx

Exams
To maintain the academic integrity of its online courses, DePaul CDM requires that students registered in online sections complete proctored exams. For additional information, please see:
https://www.cdm.depaul.edu/onlinelearning/Pages/Exams.aspx

Incomplete Grades
An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. For additional information, please see:
http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx.

Online Course Evaluations
Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.

Students with Disabilities
Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD).

    Loop Campus — Lewis Center #1420, 25 E Jackson Blvd.   312-362-8002
    Lincoln Park Campus — Student Center #370, 2250 N Sheffield Ave.   773-325-1677
    email: csd@depaul.edu   Fax: 312 362 6544   TTY: 773 325 7296

Withdrawal
Students who must withdraw from this course may do so by using the University's web registration system. See:
https://offices.depaul.edu/depaul-central/registration/Pages/withdrawal-or-leave-of-absence.aspx

Retroactive Withdrawal
This policy assists students for whom extenuating circumstances prevented them from meeting the withdrawal deadline. Please see: http://www.cdm.depaul.edu/Current%20Students/Pages/Enrollment-Policies.aspx

You are strongly encouraged to use class resources to your best advantage.
This includes asking questions and coming to class prepared.