

CSC 300: Data Structures in Java I

Syllabus for Winter 2016-2017

Duru Turkoglu

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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 Introduction to Computer Science II or CSC 243 Python for Programmers with a grade of C- or better.

Course Information

Instructor:	Duru Turkoglu, CDM 846 (243 S Wabash), 312-362-8127 dturkog1@cdm.depaul.edu
SI Leader:	Luis Pineda, luispineda68@gmail.com
Schedule:	MW 3:10pm - 4:40pm, CDM 226, Loop
Homepages:	http://condor.depaul.edu/dturkog1/courses/csc300/ http://d2l.depaul.edu/
Discussion Platform:	http://www.piazza.com/depaul/winter2017/csc300/
Office Hours:	Mondays 9:00am - 10:30am, CDM 846 Thursdays 2:00pm - 3:30pm, CDM 846 Mondays 1:30pm - 2:30pm, DePaul Center C105 (SI Leader) Also by email appointments
Review Sessions with SI Leader:	Tuesdays 5:00pm - 6:00pm, JTR 105 (Lincoln Park Library) Thursdays 4:00pm - 5:00pm, JTR 111 (Lincoln Park Library)

Required Textbooks (Actual links on D2L)

- [Core Java for the Impatient](#) by Cay Horstmann.
- [Algorithms, 4th edition](#) by Robert Sedgewick and Kevin Daniel Wayne. This book has a great [companion site](#). Do not get any prior edition! Available online via [Safari](#).

Recommended Books

- [Schaum's Outline of Data Structures with Java, Second Edition](#) by John Hubbard.
- [Think Java, How to Think Like a Computer Scientist](#) by Allen B. Downey. This book is freely available online at the above link in pdf and in html formats.
- [Java for Python Programmers](#) by Brad Miller. This book is freely available online at the above link in html format.
- [Introduction to programming in Java \(Chapter 1\)](#) by Robert Sedgewick and Kevin Daniel Wayne. This chapter is freely available online at the above link in pdf format.

Discussion Platform

The course discussion platform, is used for course announcements and class discussion. You **must** subscribe to the course discussion platform. Do it as soon as possible by visiting the address below:

<http://www.piazza.com/depaul/winter2017/csc300/>

The course discussion is an extension of our time in class. This is particularly great for students that miss the live lecture. If you are watching the class online, you should write down any questions that arise, including the time from the recording for reference. Whether you have questions from the recording 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 and/or the SI leader will be following up with a reply to each discussion or question as soon as possible, within 24 hours in general.

Objectives

The objectives of this course is to develop a permanent understanding of:

- Iterative and recursive solutions
- Arrays, Linked lists, Stacks, Queues
- Union-find
- Heaps, Priority queues
- Basic OO programming techniques
- Debugging and testing programs
- Analyzing correctness and performance
- Sorting algorithms

Assessment

- The course grade will be composed of:

Item	Weight
Homework assignments	20%
Online quizzes	10%
Participation	5%
Midterm exam	30%
Final exam	40%

- There will be eight (8) homework assignments each of which is worth 2.5% of the total grade. Attending the SI Sessions for a particular homework assignment will count as 10% bonus points on that assignment.
- There will be four (4) quizzes each of which is worth 2.5% of the total grade.
- Contributions on the discussion platform of the course (Piazza) is worth 5% of the total grade, 25 such contributions corresponds to the full grade. You can also participate by posting test code to the instructor privately, each such working code is worth 4 contributions.
- The final exam will be comprehensive, i.e., will require knowledge of the material covered in the entire course. You must complete the final exam to pass the course.
- The grading scale will be as below, where pluses/minuses will be given at the high/low ends of each grade range.

Range	Letter
$90 \leq \dots < 100$	A
$80 \leq \dots < 90$	B
$70 \leq \dots < 80$	C
$60 \leq \dots < 70$	D
$0 \leq \dots < 60$	F

Lecture Plan

The below lecture plan is tentative and subject to change as the course progresses.

Week	Date	Plan
1	Jan 2 - 8	Arrays, Iteration and Recursion (1.1)
2	Jan 9 - 15	Induction, Iteration and Recursion
3	Jan 16 - 22	Linked Structures, Queues, Stacks (1.2, 1.3)
4	Jan 23 - 29	Mutating Linked Structures (1.3)
5	Jan 30 - Feb 5	Intro to Analysis of Algorithms (1.4)
6	Feb 6 - 12	Midterm
7	Feb 13 - 19	Union Find (1.5)
8	Feb 20 - 26	Elementary Sorts (2.1)
9	Feb 27 - Mar 5	Mergesort and Comparators (2.2)
10	Mar 6 - 12	Priority Queues and Heaps (2.4)
11	Mar 13 @ 2:30pm	Final Exam

Homeworks

1. Students will be receiving and submitting the homework assignments using the Git distributed version control system. Students will need to:
 - Create a (free) personal [BitBucket account](#).
 - Install [Git](#).
 - Read the BitBucket tutorials:
 - <https://www.atlassian.com/git/tutorial/git-basics>
 - <https://www.atlassian.com/git/tutorial/remote-repositories>
 - Accept the instructor's invitation on BitBucket and clone a local version of the repository to work on.
2. Students must verify that their homework has been submitted correctly, by logging in to the BitBucket web interface and checking that their modifications have been uploaded. Homework submissions must be submitted online via the Git repository. **Email submissions will not be accepted at all.**
3. Homework assignments are usually posted on Wednesdays and are due by 11:59PM CST the Tuesday after, six (6) days after they are posted. Late submissions of up to class meeting time on Wednesday (up to 15 hours) are allowed but they will incur a 10% penalty. **Homeworks submitted more than 24 hours late will not be accepted at all.**
4. Students are encouraged to discuss the homework assignments together, however submitted work must be completed individually. Students must not use or look at anyone else's solution, and must clearly acknowledge any code that is obtained from other sources (such as books or the Internet). You may use as much code as you like (without acknowledgement) from the examples discussed in class. If in any doubt, contact the instructor well before the submission date for advice. Plagiarism will result in penalties up to and including failing the course.
5. Students must keep backup copies of all submitted homework.

Quizzes

1. Students will be receiving and completing two quiz assignments in the form of a practice exam (on D2L). These assignments will be timed and will be posted on Wednesdays and are due by 11:59PM CST Friday that week.
2. In addition to the two practice exam quizzes above, students will be receiving and completing two more quiz assignments on D2L.

Policies

Course Policies

1. Students must subscribe to and follow the discussion platform in a timely fashion.

2. In class and online, students are strongly encouraged to ask questions and offer comments relevant to the course material.
3. All electronic interactions are an extension of the classroom and should be treated as such. While disagreement can be part of the discourse, online communication should remain respectful and appropriate rather than demeaning and/or unprofessional.
4. Lecture slides are a supplement to lectures only. The slides are not intended to be read in lieu of listening to the lecture.
5. Classroom use of a laptop or tablet must normally be restricted to class-related tasks such as note taking, checking references, testing code examples, etc.

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.

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>

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 Announcements in D2L and sent via email.

Exams

To maintain the academic integrity of its online courses, DePaul CDM requires that students registered in online sections complete proctored exams. Students registered in an on-campus section are not allowed to register for a proctored exam, and must take the exam with the on-campus section. For additional information, please see:

<http://www.cdm.depaul.edu/onlinelearning/pages/onlinepolicies.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) at: <mailto:csd@depaul.edu>

Loop Campus — Lewis Center #1420, 25 E Jackson Blvd.

Phone number: 312-362-8002

Lincoln Park Campus — Student Center #370, 2250 N Sheffield Ave.

Phone number: 773-325-1677

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. For additional information, please see: <http://offices.depaul.edu/depaul-central/academics/regISTRATION/Pages/withdrawal-policy.aspx>.

Retroactive Withdrawal

This policy assists students for whom extenuating circumstances prevented them from meeting the withdrawal deadline. For additional information, please see:

<http://www.cdm.depaul.edu/Current%20Students/Pages/Enrollment-Policies.aspx>.