

CSC 301/Data Structures II - Syllabus

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Office Hours (Office and Zoom): posted on D2L

Zoom Link: posted on D2L

Course Website: <https://d2l.depaul.edu/>

Course Description

From the course catalog: "This is the second course in a two-course sequence on data structures using Java. The course focuses mainly on the following data structures, their analysis, and their applications: trees (search trees, balanced search trees), ~~heaps~~, associative arrays, hash tables, and data structures for representing graphs. The implementation of the basic operations on each data structure are discussed and analyzed in terms of their efficiency. The applications discussed highlight and exploit the unique characteristics of the different data structures, and emphasize problem solving and recursive thinking. **CSC 300 and MAT 140 are prerequisites for this class.**"

More specifically, this is a fourth programming course, following the introductory courses CSC 241 and CSC 242 and the first data structures course CSC 300. I expect that you've learned enough Java to be able to write a program of medium complexity. I will make clear what I mean by that in the first assignment.

Course Learning Outcomes

Upon successful completion of this course, a student will be able to:

- write programs of medium complexity from scratch ("blank screen programming") that uses basic object-oriented techniques
- implement repetitive algorithms using both iteration (loops) and recursion
- use a debugger to set breakpoints and to inspect variable values during execution
- test a program at the module (method) level
- analyze a simple program to determine its running time in terms of the input size
- implement symbol tables using binary trees (balanced and unbalanced) and hash tables
- implement simple algorithms for processing graphs
- explain how string compression works (optional)

Course Website

Except for the textbooks, all course materials will be available through DePaul's [D2L web site](#).

Textbooks

There is one required textbook that comes in two forms. The book's title is **Algorithms, 4th edition**, by Robert Sedgewick and Kevin Wayne (Addison-Wesley, 2011). There is a version with videos (ISBN 978-0134384689) and one without (ISBN 978-0321573513). Many of you already have one of these as it's the same text as used in CSC 300. There is a good [companion site](#).

There are also two free textbooks, available on-line, that you should consult for Java. They are:

- [Think Java: How to Think Like a Computer Scientist](#), by Allen B Downey;.
- [Java for Python Programmers](#), by Brad Miller.

Assignments and Grades

About homework assignments:

- There will be numerous assignments typically due in about one week.
- Some of them are programming assignments (about 5 of them) and some of them are writing assignments (about 4 of them).
- A programming assignment may *never* overlap with another programming assignment; A writing assignment may *never* overlap with another writing assignment; but a programming assignment *may* overlap with a writing assignment.
- I will send an email through D2L once an assignment is posted. So **keep an eye on your DePaul email**.

In addition to the homework assignments, there will be a **midterm exam** and a **final exam**. The assignments will be worth a total of 30% of the final grade, the midterm 30%, and the final exam 40%.

For the **in-class** section:

- The **midterm exam** is on **May 7, 3:10pm - 4:40pm**, in class (during class hours in the same room the class is held).
- The **final exam** is on **Jun 11, 2:30pm - 4:30pm**, in the same room the class is held (see the page: <https://academics.depaul.edu/calendar/Pages/finals-calendar.aspx> for final exam scheduling). The exam will last for **two hours**.

- **No** makeup exams will be given. The exams are **open book** (unlimited amount of notes, books, slides, etc. as long as they are in paper forms). Electronic devices (including phones, ipads, tablets, etc.) and internet access are **not** allowed. **Please bring your valid ID** (only driver's license, passport, or DePaul id allowed) for identity verification.

For the **online/async** section:

- For **both** the midterm and final, you will need to take **proctored exams at an approved testing facility (university, library, etc.) or at CDM** (see: <https://www.cdm.depaul.edu/onlinelearning/Pages/Exams.aspx>). **No** online exams will be given. You will need to register through MyCDM/D2L to take your proctored exam during a time window that is specified in the registration system. **No** exams outside of this time window will be given. Please register as soon as possible. Please note that you may need to meet the University's vaccination requirements in order to take your proctored exams. The exams are **open book** (unlimited amount of notes, books, slides, etc. as long as they are in paper forms). Electronic devices (including phones, ipads, tablets, etc.) and internet access are **not** allowed.
- The **midterm** registration window will be 3-5 days around the in-class exam including a Saturday. The duration of the midterm exam is 1.5 hours.
- The **final** exam registration window will be 3-5 days in the final exam week including a Saturday. The duration of the final exam is 2 hours.
- You **cannot** come to the class to take the exams with the in-class section.

Final course grades will be assigned according to the following table.

Letter	Percentage range
A	95-100
A-	90 - <95
B+	87 - <90
B	83 - <87
B-	80 - <83
C+	77 - <80
C	73 - <77
C-	70 - <73
D+	65 - <70
D	60 - <65
F	<60

Please note the following policies on grading:

- Assignments cannot be made up after the due date.
- Extra credit work will not be assigned. There will not be make-up assignments, for example.
- Grades will not be modified so that a student can maintain their GPA, get tuition reimbursement, or maintain visa status.

Class Schedule

The following is a tentative schedule for the course. The actual progress may deviate from the plan. This table also tells you **what reading you should do** to prepare for each topic.

- Overview (Class 1)
- Symbol tables
 - Sequential data structures (Class 2-4; Sec 3.1)
 - Linked list
 - Array
 - Trees
 - Unbalanced binary search tree (Class 5-6; Sec 3.2)
 - Balanced binary search tree
 - 2-3 tree (Class 7-8; Sec 3.3)
 - Red-black tree (Class 9-11; Sec 3.3)
 - ~~AVL tree~~
 - Hash tables (Class 12-14; Sec 3.4)
 - Linear probing hash table
 - Separate chaining hash table
- Graphs (Class 15-18)
 - Undirected graphs (Sec 4.1)
 - Directed graphs (Sec 4.2)

If we have some more time, we could cover the following:

- String symbol tables (Section 5.2)
- Data compression algorithms (Section 5.5)

Course Announcements

All important announcements regarding the course will be done in one of the following ways:

- **Announcements in class.** You are responsible for anything and everything I say when teaching.
- **Announcements through email.** I will also announce important issues regarding the course through emails (automatically sent to the whole class through D2L). So **keep an eye on your DePaul email.**

Discussion Forum on D2L

You can let me know if you really want a discussion forum to be setup on D2L for the course so that you can post questions and get answers from me which can benefit everyone else.

Otherwise, I will not do this (students tended to be silent on the forum in previous quarters).

If there is a discussion forum, please note the following:

- It is okay to ask on the forum general questions about Java, Eclipse, programming, or the course materials.
- **Questions about homework** should be limited to only general ones such as understanding the requirements.
- Specifically, **any postings related to hinting possible solutions for undue homework are prohibited.** Doing so may incur deletion of post, being muted on the forum, or even grade reduction if it is really bad.
- If you do not know whether it's appropriate to ask a certain question on the forum, you can email me instead (which is private).
- Please be **respectful** and **professional**. Violation of this may also incur being muted. See also the following section on how to send emails to me.
- Everything has to be relevant to the course (no chitchat).

About Emailing Me

You can send me email directly with questions. I usually check my email regularly and keep responsive during weekdays (but I don't have any guarantee for weekends). Before sending me a message, please read the **email guidelines**. Email not conforming to the requirements in that document will probably not get read. One important thing:

- **Please include the course name (i.e., CSC 301) in the email title or body so that I know which class you are from.**
- **Please see the section "About sending me questions on coding" for how send me such questions.**

Supplemental Instruction Review Sessions

This course was selected to participate in DePaul's Supplemental Instruction (SI) program. SI is a series of peer-led review sessions based on an internationally-recognized evidence-based active learning model for students taking historically difficult courses. SI is free and for ALL students who want to strengthen their understanding of course material and improve their grades.

At each session you will be guided through collaborative learning strategies by your SI Leader, a DePaul student who has previously taken the course and done well. SI sessions offer a chance to work together with classmates to compare notes, practice important concepts, develop effective study methods, and test yourselves before quizzes and exams.

Your SI Leader will facilitate either (3) 1-hour SI sessions or (2) 1.5 hour SI Sessions per week between weeks 2-10. Sessions are offered on-campus and online. **Please complete the poll your SI Leader will send to you the first week to help them plan the most accommodating session days/times and modality for you.**

Session times can be found on the Supplemental Instruction website, go.depaul.edu/si as well as the course D2L site by Monday Week 2. If you are unable to attend a session, you will be able to access the recordings of online sessions.

Your SI Leader: TBD

Academic Integrity Policy

Plagiarism is a constant problem in this course. Every course at DePaul is subject to the academic integrity policy passed by our faculty. More information can be found at <http://academicintegrity.depaul.edu/>. **I strongly recommend that you read this, especially the part about submitting other people's work as your own.** The policy explains both your rights and your responsibilities as a student on matters of academic integrity.

The university and school policy on plagiarism can be summarized as follows: Students in this course should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as their own work any assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials consult the instructor.

Just to be clear: Posting a programming assignment on a site like Chegg.com is asking someone else to write your code, in which case, you are submitting someone else's code as your own and that's plagiarism.

Inability to explain to me how your program works will be considered evidence of cheating and may result in the score being reduced.

Respect for Diversity and Inclusion

At DePaul, our mission calls us to explore ‘what must be done’ in order to respect the inherent dignity and identity of each human person. We value diversity because it is part of our history, our traditions and our future. We see diversity as an asset and a strength that adds to the richness of classroom learning. In my course, I strive to include diverse authors, perspectives and teaching pedagogies. I also encourage open dialogue and spaces for students to express their unique identities and perspectives. I am open to having difficult conversations and I will strive to create an inclusive classroom that values all perspectives. If at any time, the classroom experience does not live up to this expectation, please feel free to contact me via email or during office hours.

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. Please see <https://resources.depaul.edu/teaching-commons/teaching/Pages/online-teaching-evaluations.aspx> for additional information

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>

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. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at

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

An incomplete grade is given only for an exceptional reason such as, for example, a death in the family or a serious illness. Any such reason must be documented. Any incomplete request must be made at least two weeks before the final and approved by the Dean of the College of Computing and Digital Media. A student must have submitted all of the assignments up to and be passing the course at the time the request is made. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request. A student requesting an incomplete must read the [CDM policy](#) on it. I will emphasize here that a student must have submitted all assignments and be doing well in the course up to the time an incomplete is requested.

Preferred Name & Gender Pronouns

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter so that I may make appropriate changes to my records. Please also note that students may choose to identify within the University community with a preferred first name that differs from their legal name and may also update their gender. The preferred first name will appear in University related systems and documents except where the use of the legal name is necessitated or required by University business or legal need. For more information and instructions on how to do so, please see the Student Preferred Name and Gender Policy at <http://policies.depaul.edu/policy/policy.aspx?pid=332>

Students with Disabilities

Students seeking disability-related accommodations are required to register with DePaul's Center for Students with Disabilities (CSD) enabling them to access accommodations and support services to assist with their success. There are two office locations:

- Loop Campus (312) 362-8002
- Lincoln Park Campus (773) 325-1677

- Email: csd@depaul.edu

Students who register with the Center for Students with Disabilities are also invited to contact Dr. Gregory Moorhead, Director of the Center, privately to discuss how he may assist in facilitating the accommodations to be used in a course. This is best done early in the term. The conversation will remain confidential to the extent possible. Please see <https://offices.depaul.edu/student-affairs/about/departments/Pages/csd.aspx> for Services and Contact Information.