Data Structures Syllabus

NYU — CSCI-UA.0102-40

March 2026

Lecture

- **Instructor**: Romain Cosson (rc6142@nyu.edu)
- **Time**: Monday / Wednesday 11:00am - 12:15pm
- **Location**: Room 317. Warren Weaver Hall (WWH), 251 Mercer St.
- **Office Hours**: Wednesday 9:00-10:00am, (Room 412 WWH)

Recitation

- **Recitation Leader**: Kevin Peter (kevin.peter@nyu.edu)
- **Time**: Friday 9:30-10:45am
- **Location**: Room LL138. Bobst Library.
- **Office Hours**: Monday 2:00-3:00pm, (Room 317 WWH)

The class is also assigned two graders.

Tutoring

Tutoring for all is organized at the department level for all CS 102 courses.

Prerequisite

A grade of C or higher at Introduction to Computer Science (CSCI-UA 101) or a successful placement exam. Contact your advisor if you need to switch to a CS101 class.

Topics

The goal of this class is to understand the design of data structures, and their role to obtain efficient and reliable algorithms. Topics include:

- Abstract data types (lists; stacks; queues; priority queues; dictionaries)
- Implementations (arrays; Linked lists; doubly linked lists; resizable arrays; binary heaps; binary search trees; AVL trees;)
- Algorithms (sorting; searching; recursion)
- Java and object oriented programming (encapsulation; types; inheritance; polymorphism)

Students who are already familiar with the material taught in this course can test out of the course.

Material

The class is supported by three components:

- **Slides**: Used to cover the material for the class (theory).
- **Whiteboard**: Used to go through classic examples and exercises (practice).
- **Code**: Used to implement algorithms seen in class (code).

Much of the material used in this class has been graciously provided by Prof. Evan Korth and Prof. Joanna Klukowska, who have been teaching the topic for years.

More material

- **Books**: *Data Structures and Algorithms in Java, 6th edition, Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser* (recommended) and *Data Structures and Algorithm Analysis in Java (third edition), Mark Allen Weiss* (optional).
- **Coding environment**: All programming work in this course will be done in Java. We recommend using Visual Studio Code (VS Code) rather than Eclipse or other IDEs. install the Java Development Kit (JDK) from the official Oracle website and verify the installation by running `java -version` and `javac -version` from a terminal. Configure your workspace so that VS Code recognizes the installed JDK.
- **Brightspace**: Brightspace will be used to post class and recitation content, exercises, grades, and announcements. There will be two distinct Brightspace websites: one for the lecture and one for the recitations.

Assignments

- **Exams**: There will be one midterm and one final. The midterm will take place during class. Time and location will be announced via Brightspace. You should come to me at the beginning of the semester if you have foreseeable constraints (e.g., observed religious holiday) that would prevent you from taking an exam on some date. If you must miss the midterm or final for an emergency reason (e.g., medical), contact me before the start of the exam.
- **Quiz**: Quizzes will consist in a (10-15) minutes evaluation on paper, usually at the end of recitations. There will be 5 to 10 quizzes in the semester.
- **Homework**: Homeworks will mostly consist of programming assignments, posted on Brightspace usually on Fridays (5 to 10 in the semester). Those assignments will be presented and initiated during recitation. You are allowed one late homework submission (4 days max), with no justification required. Students are also expected to complete exercises given in class at home.

Questions regarding exams, quizzes, and homeworks should be asked in class (not by email) so that everyone gets the same information.

Make-up policy for quizzes

1. All quizzes that you take will count towards your average quiz grade.
2. For the first quiz that you miss, the grade will be dropped, and you don't need a justification.
3. If you need to miss a second quiz, and you have a valid reason for missing that second quiz, you should send Kevin (cc me) an email explaining why you must miss the quiz. This email should be sent at least 24 hours before the quiz date, unless the reason is unforeseeable, in which case it should be sent before the class/recitation, again, unless *"force majeure"*. You are not expected to miss a third quiz.

The recitation leader (RL) is responsible for organizing the makeup quiz and can decide whether the conditions above are met. The RL also chooses the format for the make-up quiz. It typically consists of a 10-minute oral evaluation on the topic that up to three people can take at once (using the whiteboard). The make up quiz is always scheduled after the quiz is taken by the rest of the class, and the grading is typically a little harder than for the quiz given in class.

Collaboration policy and AI

See the Computer Science Department's Academic Integrity statement. Oral collaboration between the students is permitted (and encouraged) but code should be your own. The use of AI is allowed to help you understand concepts covered in class, and even to help you if you are stuck with your homework. But your code should not be copy-pasted from a conversation with AI. During the semester, the recitation leader or I may test you by asking you questions about your code. You are expected to be able to explain every line of code that you write.

Final grade

The final grade (G) will be a weighted combination of final exam (E) midterm (M) quizzes (Q) and homeworks (H). The **tentative** weights are:

$$G = 0.6(0.6E + 0.4M) + 0.3Q + 0.1H.$$

Conclusion

Your ideas to promote a better understanding and learning in class are welcome. Fell free to ask questions, to engage in discussions.