

CS 303A, Section 01, Object-Oriented Programming and Data Structures, Fall 2026

College of Business and Technology

COURSE INFORMATION:**Credit Hours:** 5.0**Meetings:** Tuesdays & Thursdays, 10:50 a.m. – 12:55 p.m. in room **LWH 2108****Workshop:** Thursdays, 9:50 a.m. – 10:40 a.m. in room **LWH 2108**

Course Description: This course provides an in-depth study of object-oriented programming and abstract data structures implementation and application. It covers inheritance and polymorphism, abstract classes and interfaces, exception handling, file operations, stacks, queues, lists, trees, heaps, and graphs. Additional topics include recursion, searching, and sorting algorithms.

Course Prerequisites: CS200 minimum grade of C.

FACULTY INFORMATION:**Instructor:** Akkady Tchaba.**Office:** CBT-123**Phone:** (786) 6-AKKADY**E-mail:** atchaba@neiu.edu**Office Hours:**

Day:	Time:	Location:
Wednesday	10:30 a.m. – 12:30 a.m.	Zoom
Thursday	1:00 p.m. – 3:00 p.m.	CBT-123 AND Zoom
Or by appointment.		

COURSE MATERIALS:

Textbook: Object-Oriented Data Structures Using Java. Fourth Edition, *Nell Dale, PhD; Daniel T. Joyce; Chip Weems*. **ISBN-13: 9781284089097**

No access code required.

Websites:

- Class Materials, Lectures, Homework: <https://www.atchaba.com/>
- Grades: <https://neiu.desire2learn.com/>
- Discussions Forum: <https://www.slack.com>

MAJOR TOPICS:

- Inheritance & Polymorphism
- Exception Handling
- File Input/Output
- Abstract Classes & Interfaces
- Abstract Data Types (ADT)
- Stacks
- Recursion
- Queues
- Collections
- Lists
- Binary search trees
- Sorting algorithms
- Searching algorithms
- Priority queues, heaps, and heapsort
- Graphs

COURSE OBJECTIVES/ STUDENT LEARNING OUTCOMES:

- Be able to implement class extension and to use polymorphism
- Explain the uses of interfaces, their extension by other interfaces and implementation by classes
- Be able to write programs to read from and write to files
- Be able to throw and handle standard exceptions
- Be able to implement the following data structures using arrays: Stacks, Queues, Lists, Heaps, and Graphs
- Be able to implement the following data structures using a linked representation: Stacks, Queues, Lists, Trees, and Graphs.
- Be able to use Stacks, Queues, Lists, Heaps, Trees, and Graphs for various applications, such as depth-first searches and breadth-first searches.
- Understand how to use recursion to implement Binary Search Trees.
- Know the different types of tree traversals.
- Know how to analyze running time of algorithms using Big-O notation.
- Know how to implement Merge sort, Quick sort, and Heap sort.

STUDENT TASKS / ASSIGNMENTS / REQUIREMENTS:

Grading: There will be several homework's, two projects, two quizzes, and one final exam.

Item	Weight
Homework Average (HW)	35%
Workshops (WS)	5%
Projects (P)	20%
Quizzes (Q)	20%
Final Exam(FE)	20%

Your **Weighted Average (WA)** is the weighted average of *all* items above, and is defined by:

$$\text{WA} = (0.35)(\text{HW}) + (0.05)(\text{WS}) + (0.2)(\text{P}) + (0.2)(\text{Q}) + (0.2)(\text{FE})$$

Your course grade will be determined as follows:

Weighted Average	Course Grade
90.00% or higher	A
80.00% – 89.99999%	B
70.00% – 79.99999%	C
45.00% – 69.99999%	D
0% – 44.99999%	F

I don't round up grades, nor I negotiate decimal points. For example: 89.99999% is a solid 'B' not a debatable 'A'.

Programming Assignments:

- There will be several homework's assigned, while working on homework assignments in groups is encouraged, plagiarism is **NOT** tolerated. All your work should be unique and done by **yourself**, you are not allowed to share code with anyone but me, if two or more people turn in identical or essentially identical programs, they will receive a '0' for that assignment.
[NEIU Student Code of Conduct](#)
- Homework assignments will be turned in electronically through D2L and to the appropriate Dropbox folder.
- There will be no makeup homework assignments, but the lowest homework grade will be dropped — so if you didn't submit one, that is the one dropped.
- Homework assignments are due on **Thursdays** by 11:59 p.m. Submitting your homework by the due date earns a 5% bonus.
- Late homework assignments should be submitted within 3 days of the original due date(grace period). Submissions during the grace period are not penalized, but do not earn the on-time bonus. No homework submissions are allowed after the grace period.

Exams:

- There is one midterm and one final exam during the semester.
- You may not give assistance to anyone or receive assistance from anyone during exams.
[NEIU Student Code of Conduct](#)
- The final exam date is:
Saturday December 5th, 2026 from 11:00 am to 1:00 pm.
- Exam dates are in the course outline.

Grade Scale:

Percent Range	Letter Grade	Description
90-100%	A	Up to two errors in performance
80-89%	B	More than two errors in performance
70-79%	C	One or two relatively minor errors in competence
60-69%	D	One or two serious errors in competence
0-59%	F	Three or more errors in competence

Generally speaking, performance errors are those where it's apparent the student knew what to do and how to do it but made a mistake in the process of putting it on paper, such as: minor typographical errors, minor one-off syntax errors, etc. All other errors are those of competence, that is, they indicate either a lack of understanding the course material or an inability to apply that understanding to the given problem. The relative seriousness of errors will be determined by the instructor.

Makeups:

- If you cannot attend an exam because of religious reasons or because of a previously scheduled conflict of a *serious* nature, you must send me an e-mail by **September 11th**, telling me the date and the reason you cannot attend in order to be eligible for a makeup.
- If you miss an exam due to a serious medical emergency, you must submit adequate medical documentation from your doctor in order to be eligible for a makeup.

Workshops:

- There will be a weekly workshop associated with your section, attending the workshop is mandatory and counts as a part of your grade.
- Workshops attendance count as 5% of your overall grade.
- Each workshop attendance is worth 1 point.
- You are allowed to miss up to 2 workshops during the semester without penalty. Beyond that, you will start losing points.

Regrading:

- If you are not satisfied with any of your grades, you may request a regrade.
- All regrade requests must be submitted within 48 hours after the grade was posted on D2L.
- When you request a regrade, you agree that you may receive the same grade, a higher grade, or a lower grade if more errors are found.
- To request a regrade, send me an email telling me the reason why you think your grade is incorrect.
- ONLY emails from your NEIU account will be considered, if you email me from your personal or work email, or any account other than your NEIU email, your request will be rejected.
- If you fail to follow the instructions, your request will be rejected.

Miscellaneous:

- If my office hours don't work with your schedule, please send me an e-mail to set up an appointment.
- You are responsible to check online for assignments, solutions, and announcements.
- No extra credit will be given.
- No "I" grade (Incomplete) will be given.
- Last day to drop the class and receive a "W" is Friday, October 30th, 2026.

Course Outline:

See last page of this document for tentative course outline.

COURSE POLICIES AND STATEMENTS:**Generative AI Policy:**

AI generative models can be of great help for this class's coursework. Its use as a source material and as fodder for ideas is allowed in some aspects of this course's work. As the course instructor, I will be happy to clarify its use in general, or on a per-assignment basis. However, keep in mind that the product of such tools can have serious limitations and it is not considered your own. Therefore, its presentation as your own work will be considered plagiarism. In addition, as with any supporting material, you are expected to (a) scrutinize its contents, and (b) cite it appropriately with the name of the tool, the prompt used to generate useful content, and the day accessed.

Absence Policy:

Attendance is required, if you miss a class, you are responsible to check online for assignments, solutions and announcements.

Academic Integrity Statement:

By enrolling in this course, you are bound by the NEIU Student Code of Conduct: <http://www.neiu.edu/university-life/student-rights-and-responsibilities/student-code-conduct>. You will be informed by your instructor of any additional policy specific to your course regarding plagiarism, class disruptions, etc.

Campus Safety Statement:

It is recognized that a safe university environment is a shared responsibility of faculty, staff, and students, all of whom are expected to familiarize themselves with and cooperate with emergency procedures. Emergency procedures and safety information can be found at neiu.edu/police. Download the CampusShield app on Google Play or the App Store for enhanced public safety services, including emergency text notifications via Northeastern's N-Safe system.

ADA Statement:

NEIU is committed to the success of all of our students. We recognize that each student brings valuable experiences and abilities to their education. NEIU faculty are ready to support you in whatever ways will allow you to achieve your goals, and this includes making sure you have access to and are able to fully engage with our course. Whatever the abilities or disabilities (both visible and invisible) you bring to the table, please know that you are welcome here and your success is our mission. Please do not hesitate to contact your instructor with any questions or concerns about your access to the course.

Northeastern Illinois University (NEIU) complies with the Americans with Disabilities Act (ADA) in making reasonable accommodations for qualified students with disabilities. Please contact Student Counseling Services (773-442-4650) and/or Student Disability Services (SDS) for help with accommodations. SDS is located in room D104 and can be contacted at (773) 442-4595 or sds@neiu.edu. Visit the website for more information: <http://www.neiu.edu/university-life/student-disability-services>. SDS is committed to fostering inclusion and full participation of students with disabilities in all aspects of their University experience. If you already have an accommodation letter, please send it to your instructor.

COURSE OUTLINE:

Week	Tuesday	Topic	Thursday	Topic
1	8/25/2026	Objects and Classes	8/27/2026	Instance Methods and Constructors
2	9/1/2026	Object Lifecycle, Immutable Objects	9/3/2026	Wrapper Classes
3	9/8/2026	Thinking in Objects (Strings)	9/10/2026	Thinking in Objects (Strings)
4	9/15/2026	Inheritance and Polymorphism	9/17/2026	Inheritance and Polymorphism
5	9/22/2026	Exception Handling and Text I/O	9/24/2026	Exception Handling and Text I/O
6	9/29/2026	Abstract Classes and Interfaces	10/1/2026	Review
7	10/6/2026	Quiz #1	10/8/2026	Generics, Time Complexity, Big (O), Abstract Data Types
8	10/13/2026	Linked Lists	10/15/2026	Linked Lists
9	10/20/2026	Stacks	10/22/2026	Recursion
10	10/27/2026	Queues	10/29/2026	Collections
11	11/3/2026	<i><u>Election Day – No Class</u></i>	11/5/2026	Quiz #2
12	11/10/2026	Binary Search Trees	11/12/2026	Binary Search Trees
13	11/17/2026	Sorting & Searching Algorithms	11/19/2026	Sorting & Searching Algorithms
14	11/24/2026	Sorting & Searching Algorithms	11/26/2026	Thanksgiving – No Class
15	12/1/2026	Review	12/3/2026	Review
Saturday December 5th 2026		Final Exam 11:00 a.m. to 1:00 p.m.		