



SYLLABUS   
College of Computing and Software Engineering  
Department of Computer Science

CS 3305: Data Structures SECTION W04

CRN 85374  
Academic Term: fall 2023

**Course Information**

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Class meeting time: Online

Modality: Full Online.

Location: N/A

**Instructor Information**

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**Name:** Carla McManus

**Email:** cmcmanu2@kennesaw.edu – However, please note that communications sent directly to the instructor’s KSU address ([cmcmanu2@kennesaw.edu](mailto:ogarcia5@kennesaw.edu)) or those sent outside of the D2L system, may or may not be provided a response. **Use the D2L system only to communicate electronically regarding this course.**

**Office Location**: **Office Location:** Atrium Building Room J305

**Office phone:** : (470)578-6005

**Office Hours:**  Mondays and Tuesdays – 7:00 pm – 8: 30 pm except on holidays (Virtually via Microsoft Teams and by appointment only. You may schedule an appointment to meet virtually via Microsoft Teams. Meetings will be conducted over Microsoft Teams during office hours. Appointments must be scheduled at least 24 weekday hours in advance (not including weekends and holidays) of desired time. If there is a scheduling conflict or I am engaged in a conversation already I will let you know and make appropriate arrangements.

**Office Location:** Atrium Building Room J305 Office phone: (470)578-6005

**Communication Methods:**

Preferred method of communication: D2L email

**Electronic Communications:**

* All electronic communications with your instructor regarding this course shall be done through the D2L email account system ([cmcmanu2@kennesaw.view.usg.edu](mailto:cmcmanu2@kennesaw.view.usg.edu)). Please send all messages through the D2L email system.
* The instructor and, if applicable, the TA will reply to email within 48 hours (this does not include holidays and weekends) or during the office hours (as per KSU policy).
* Communications sent directly to the instructor’s KSU address ([cmcmanu2@kennesaw.edu](mailto:ogarcia5@kennesaw.edu)) or those sent outside of the D2L system, may or may not be provided a response. **Use the D2L system only to communicate electronically regarding this course.**

**Course Description**

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This course introduces data structures, specification, application, and implementation. The case studies will illustrate how data structures are used in computing applications. The emphasis of the course is on linear and some nonlinear data structures and object oriented principles. Topics include: abstract data types, stacks, queues, lists, binary search trees, priority queues, recursion, algorithm efficiency, trees, heaps, hash tables, and analysis of search and sort algorithms and their performance for implementation and manipulation. The programming language to be used in this course is Java.

Prerequisites: (MATH 2345 or CSE 2300) and [(CSE 1322 and CSE 1322L each with a "B" or better), or MTRE 2610 with a "B" or better, or CPE 3000 with a "B" or better]

Credit Hours: 3-0-3

**Course Materials**

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Required Text:

Introduction to Java Programming, Comprehensive Version, 10th Edition

By Y. Daniel Liang

Pearson Publishing, 2015

ISBN#: 978-0-13-376131-3

Technology requirements: Any IDE and Java compiler. (Eclipse, jGrasp etc.)

**Learning Outcomes**

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

LO 1. Demonstrate understanding of single dimensional, multidimensional arrays, and dynamic arrays to store and access data, by applying these to programs

LO 2. Demonstrate learning of specifications and presentation of commonly used data structures by completely developing software. This must include appropriate documentation

LO 3. Demonstrate understanding and learn of advanced search and sort algorithms and their performance issues, by applying these to programs

LO 4. Demonstrate the analysis of the time complexity and space complexity of algorithms by explaining these concepts and applying these in programming

LO 5. Demonstrate the data structure covered in the courses by performing problem solving and application development

**Course Requirements and Assignments**

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Course activities (Homework, quizzes, exams, projects, etc.) are given numerical scores. These scores will be averaged at the end of the semester using assigned weighting.

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| --- | --- |
| **Assignment** | **percentage** |
| Test 1 | 20% |
| Test 2 | 20% |
| Final Exam | 20% |
| Assignments | 15% |
| Quizzes | 20% |
| Warm Up Quizzes | 2% |
| Practice Programs | 3% |

**Evaluation and Grading Policies**

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Letter grades will be determined by ranking the numerical averages of all students in the class. Cut-off points for grades will depend on the performance of the class as a whole; however, they will be no higher than 90 (A), 80 (B), 70 (C), and 60 (D).

**A: 90% and above**

**B: 80% thru 89%**

**C: 70% thru 79%**

**D: 60% thru 69%**

**F: less than 60%**

**Course Policies**

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**Feedback in a Timely Manner:** The instructor will ONLY reply to e-mails that are sent using D2L email system. Please allow your instructor 24-48 hours before replying back to your email.

**Attendance Policy:** N/A

**Assignment and Homework Submission Policy**

Each assignment is due at the set deadline.

Students must submit their deliverable to the assignments folder in D2L. No email submissions will be accepted.

**Late assignment submissions and assignment makeup policy**

Late submissions *may* be accepted up to a certain number of grace period days specified for each assignment. However, any late submission will incur a 10% penalty for each day late. Late assignments submitted after the grace period window automatically incur a grade of 0. D2L marks it late ONE SECOND after the due date and time!

For assignments (except those that may be given for extra credit) where the submission deadline may be missed due to extenuating circumstances (physical/mental health illness, bereavement, jury duty, military obligations, power outage preventing access to technology required for assignment, etc.), you must notify the instructor via D2L email no later than 2 days after the assignment due date. You must also provide no later than 2 weeks after the assignment due date sufficient signed, and dated documentation to substantiate an excused absence in order to make up a missed assignment for reasons such as physical/mental health illness, bereavement, jury duty, and military obligations.

**Only 1 (one)** opportunity will be granted during the semester to make up any late assignment due to a power outages or other extenuating circumstances such as physical/mental health illness, bereavement, jury duty, and military obligations.

If any opportunity to make up an assignment is granted, the assignment **must be completed on time by the specified makeup assignment due date. In addition, the amount of time to complete the make-up assignment will likely be shorter than that given for the original assignment.** No additional extensions or late grace periods will be given for an assignment after the opportunity to make up the assignment is granted.

Extra-credit assignments are not guaranteed. However, *if* extra-credit assignments are given, **no makeup opportunities or late grace periods are given for such assignments. Any extra credit assignment must submitted by the given due date. Otherwise, the extra credit assignment will not be accepted.**

**No makeup assignments opportunities will be granted or accepted later than 3 weeks prior to the last day of class.**

**Cheating and Plagiarsim**

Copying or paraphrasing codes from other sources or other students will be considered a violation of the Student Code of Conduct. All assignments are individual assignments, and thus, students must work out the assignments for themselves. Detection of plagiarism will referred to the SCAI and handled according to the procedures outlined in the Academic Integrity policy; see below for link and other information.

**Quiz/Exam Policy:**

* All students must take the exams and quizzes and complete assignments during the designated time periods.
* **No makeups will be given for missed quizzes and exams.**
* Please note that no Finals are given outside the University Finals Schedule times.

Students are reminded to conduct themselves in accordance with the Student Code of Conduct ([KSU Student Code of Conduct, Section III](https://web.kennesaw.edu/scai/content/ksu-student-code-conduct)), as published in the Undergraduate and Graduate Catalogs. Every KSU student is responsible for upholding the provision. Students who are in violation of KSU policy will be asked to leave the classroom and may be subject to disciplinary action by the University.

**Disability Statement**: Any student with a documented disability needing academic adjustments is requested to notify the instructor as early in the semester as possible, and must do so before the first exam. Verification from KSU disabled Student Support Services is required. All discussions will remain confidential

**Tutoring:** The College of Computing and Software Engineering offers some tutoring services for certain courses. If this applies to your course, you may want to include this resource for your students. Tutoring info can be found here: <http://ccse.kennesaw.edu/ccselabs/ccse-tutoring.php>.

**Statement on Possible Revision of Syllabus**

Please note that this syllabus is subject to revision at any time by the instructor.

**Department or College Policies**

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Students are expected to be aware that the Computer Science department has certain policies in place that govern practices within the department including:

1. “B” or better grade is required for CS 1321/L and CSE 1322/L and their equivalent transfers. All courses used toward any undergraduate degree in the computer science must be completed with an assessed performance grade of "C" or better. This means that all prerequisite courses from the CS Department must have been completed with a "C" or better in order for a student to enter the next course in a sequence.
2. All requests for course overloads must be made through the College advising office and with the approval of the Program coordinator and department chair. The instructor of any course is not permitted to authorize course overloads.
3. All requests for prerequisite bypasses must be made through the College advising office and with the approval of the Program coordinator and department chair. The instructor of any course is not permitted to authorize course overwrites.
4. All students are encouraged to register their current choice of major using the department major change process. Students who are not recorded under their intended major may find that they may be limited from registering for courses they require to complete their intended program of study.

**Institutional Policies**

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**Federal, BOR, & KSU Course Syllabus Policies:**

<http://curriculum.kennesaw.edu/resources/federal_bor_ksu_student_policies.php>

[**Student**](http://curriculum.kennesaw.edu/resources/ksu_student_resources_for_course_syllabus.php) **Resources:**<http://curriculum.kennesaw.edu/resources/ksu_student_resources_for_course_syllabus.php>

**Academic Integrity Statement:**   
<http://scai.kennesaw.edu/codes.php>

**KSU Student Resources**

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This link contains information on help and resources available to students: <https://curriculum.kennesaw.edu/resources/ksu_student_resources_for_course_syllabus.php>

**Course Schedule**

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Course Topics and Outline: Subject to change and more details, dates updated each semester.

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| **Week** | **Lecture Topic** | **Reference** |
| 1 | Discussion of course syllabus and policies Recursion | Chapter 18 |
| 2 | Generics | Chapter 19 |
| 3 | Introduction to Data Structures  Lists and Linked-Lists | Chapter 20 |
| 4 | Stacks | Chapter 20 |
| 5 | Queues | Chapter 20 |
| 6 | Algorithm Complexity and Big O Notation | Chapter 22 |
| 7 | Simple Sort Algorithms  Midterm Exam | Chapter 23 |
| 8 | Advanced Sort Algorithms | Chapter 23 |
| 9 | Heaps | Chapter 23 |
| 10 | Trees and Algorithms | Chapter 25 |
| 11 | Binary Search Trees | Chapter 26 |
| 12 | AVL Trees | Chapter 26 |
| 13 | Hashing | Chapter 27 |
| 14 | Graphs and Algorithms | Chapter 28 |
| 15 | Graphs Applications | Chapter 28 |
| 16 | Final Exam | Dec. 7 |

**Special Dates:**

* Holiday - Sep 4 (M)
* Last Day to Withdraw W/out Academic Penalty, 11:45 p.m. - Oct 10 (Tu)
* Holidays - Nov 20 (M) – 26 (Su)
* Last Day of Classes Dec 4 (M)
* Final Exam Dec 7 (Th)