**CS 325 Data Structures and Algorithms   
Fall 2025**

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| **Instructor:** | **Dr. Jeff Lehman** |
| **Office:** | **Science Hall 182** |
| **Office Hours (ie, help & questions):** | **MWF 10-11 am, TR 1-2**  Please stop by my office, call, or email anytime you have questions.  Can also use the Bookings Page to schedule a time to meet. |
| **Bookings Page:** | [**Bookings Page**](https://outlook.office365.com/book/HuntingtonUniversityComputerScience@huntingtonedu.onmicrosoft.com/) |
| **Office Phone:** | **260 359-4209 (4209 on campus)** |
| **Email:** | **jlehman@huntington.edu** |
| **Course Website:** | [**https://moodle.huntington.edu/**](https://moodle.huntington.edu/) |
| **GitHub Page:** | [**https://github.com/ProfLehman/cs325\_fall\_2025**](https://github.com/ProfLehman/cs325_fall_2025) |

**Course Description:**Analysis of algorithms, advanced sorting and searching techniques, vectors, arrays, records, sets, stacks, queues, deques, linked lists, trees, and graphs are studied in this course. *Prerequisite: CS 216. (3 credits - Fall Odd Years)*

Topics in this course will include a review of elementary data structures, an introduction to new data structures and problem-solving techniques, algorithm analysis for various searching and sorting methods, and object-oriented programming.  Program planning and design, documentation, and GitHub will be integrated.

Programming projects and assignments will be implemented using the **Java programming language**, which is freely available for Mac/Windows/Linux at [http://java.oracle.com](http://java.oracle.com/) or <https://jdk.java.net/>

**Learning Outcomes:**

**Meeting Time & Location: Monday, Wednesday, and Friday** from **1:00 pm to 1:50 am** in **Science Hall 124**.

**Required Text:**All required texts and readings for this course are free and open-source materials. Check the course website for weekly readings and links to resources.

1. (free online textbook) **Open Data Structures – An Introduction**,Athabasca University Press by Pat Morin, 2013,ISBN 9781927356388.

Retrieved from <https://www.aupress.ca/books/120226-open-data-structures/>

1. *(free online textbook)***An Open Guide to Data Structures and Algorithms** by Paul W. Bible and Lucas Moser, ISBN 1956390243  
   Retrieved from <https://pressbooks.palni.org/anopenguidetodatastructuresandalgorithms/>
2. (website) **W3 Schools** (Java) - <https://www.w3schools.com/java/default.asp>
3. (website) **Geeks for Geeks** - <https://www.geeksforgeeks.org/>  
    **Grading:**Each course component is worth a specific number of points, as shown, with the percentage of total points determining the final grade. The instructor reserves the right to adjust the course assignments and points while maintaining the overall percent weightings to meet the class's needs.

| **Component** | **Points** | **Percent** |
| --- | --- | --- |
| Attendance & Participation | 100 | 10% |
| Problem Sets (x11) | 300 | 30% |
| Project | 100 | 10% |
| Exams (x4) | 500 | 50% |
|  | 1000 |  |

**Grading Scale**A 93.0+, A- 90.0 - 92.9  
B+ 88.0 – 89.9, B 83.0 – 87.9, B- 80.0 – 82.9  
C+ 78.0 – 79.9, C 73.0 – 77.9, C- 70.0 – 72.9  
D+ 68.0 – 69.9, D 63.0 – 67.9, D- 60.0 – 62.9  
F 0 – 59.9 **Attendance & Participation:**Attendance and participation are vital to your success in this course. Weekly in-person sessions are designed for you to engage with the material, ask questions, and work through assignments. To get the most out of these sessions, please arrive on time, stay focused, take notes, and participate in discussions.

Attendance will be recorded in each class and posted on Moodle. Grades for Attendance and Participation will be entered after each exam: 30 points after Exam #1, 30 points after Exam #2, and 40 points after Exam #3. Your score will be based on your attendance record, in-class assignments, and the instructor’s observations. To earn full credit, you must:

* Attend all class sessions and arrive on time
* Stay actively engaged in class discussions and activities
* Complete all in-class work
* Avoid using phones or computers for non-class purposes
* Remain for the full session, limiting breaks to emergencies only

If you arrive late or need to leave early, please do so quietly. Attending part of a session is better than missing entirely.

If you must miss a class, notify Prof. Lehman by email as soon as possible. Do not attend class if you are sick or unwell—your health and the health of others come first. Students participating in university-approved events (athletics, music, theater, etc.) are excused but remain responsible for all missed material. In-class assignments may be made up when feasible. Note: University policy states that students who miss one-third or more of class sessions will automatically fail the course.

**Assignments:** Weekly assignments are designed to help you apply and integrate the concepts discussed in the text, online resources, and class sessions. The material covered will assist students in preparing for course examinations and projects. Please ensure your work is neat, organized, and clearly labeled with your first and last name. Assignments should be submitted through Moodle unless otherwise instructed.

Students should complete class assignments before the assigned due date and time. Unless otherwise noted, late work is accepted up to 48 hours late with a 10% penalty. Students should notify the instructor of cases of extreme hardship for which it may be possible to arrange alternate due dates. The instructor will post grades on Moodle. Please review the graded work and report any discrepancies. Students are encouraged to save returned assignments to document earned points.

**Project:** Each student will complete a final project which requires the implementation & analysis of an algorithm.  The purpose of the project is to learn, implement, improve (if possible), and present an algorithm of significant complexity. Your algorithm must include two (or more) modifications (ie. improvements).  You should describe the effects of this improvement in your documentation.  Document your algorithm in a four to ten-page document.  Use diagrams and code examples to clarify the concepts. The goal of this document is to introduce the algorithm to the course. Post your documentation on GitHub and include copies of your files. You can assume your audience has a basic understanding of data structures.

You do not have to create your own algorithms, but you must create your own implementations. Use topics from our text (and other data structures and algorithm texts) that we do not cover in class.  Try to find an algorithm that sparks your interest.  Projects will be graded based on difficulty, implementation, documentation, and clarity in presenting the algorithm. Projects will be presented in the last week of class. Each student will create a research poster for their presentation and include handouts for all members of the class.  Attendance is part of the presentation grade. See the course web page for additional details.  
  
**Academic Honesty and Plagiarism:** Your integrity is important to you and your instructor. Submitting work that is not yours, copying answers, failing to cite sources, using AI when prohibited, and treating an individual assignment as a group project is considered plagiarism and will be dealt with accordingly. Consequences may include a failing assignment grade, failure of the course, and referral to the Academic Dean.

In writing papers, reports, and summaries for your university courses, you will be held responsible for knowing the difference between legitimate and illegitimate use of published and unpublished source material. Illegitimate use is called plagiarism, and at Huntington University, the penalty for plagiarism may range from a grade of F on the work in question to failure of the course. (Intentional plagiarism is a much more serious offense than “unconscious” plagiarism, although the student is obligated to avoid both.)

Plagiarism is the use of the ideas, information, or wording of another without proper acknowledgement, leaving the false impression that the material is original with you. Everything that you quote, paraphrase, or summarize from another source must be referenced properly. The only exception to this is information that is common knowledge in the field that you are exploring—that is, facts, dates, and figures that are well known to the experts in the discipline and thus are not the property of any specific author.

**AI Statement:** This course permits the use of AI tools to assist with learning and code development. AI tools include applications like ChatGPT, Google Gemini, Microsoft Copilot, Grammarly, and others. Students are encouraged to use these tools to understand concepts, receive feedback on writing, debug code, check for plagiarism, generate practice problems, and enhance productivity. While AI can be beneficial, it is not a substitute for mastering the material. Students must fully understand and be able to explain any code or answers they submit. Students must verify the accuracy of all AI-generated code and responses. AI solutions must adhere to assignment requirements to be accepted, and some assignments may require citations for AI assistance.

Assignments will include AI usage guidelines with **red (no AI use permitted)**, **yellow (use AI with caution)**, and **green (freely use AI)** markers to guide appropriate application. AI tools are not allowed on exams. Students who use AI in ways that contradict the instructional goals outlined in the course syllabus or rely on AI to complete assignments they are expected to do independently will be in violation of the Huntington University code of conduct. Such actions will be treated as cheating and/or plagiarism. Use these tools wisely and ethically.

**Disability and Accessibility Policy:**In compliance with Section 504 of the Rehabilitation Act of 1973 and in accordance with the Americans with Disabilities Act, as amended, Huntington University will make reasonable accommodations for students with disabilities. The director of the Academic Center for Excellence is the advocate and coordinator of services for students with disabilities at Huntington University. Students with psychiatric, learning, orthopedic, or sensory conditions, which substantially limit one or more major life areas, may require accommodations to be successful on campus and should call ACE (260-359-4290) for further information. Faculty are expected to work with the director of ACE in making reasonable accommodations for such students. The e-mail for the ACE is ace@huntington.edu.

**Schedule and Exams:** Exam dates and course content are specified below, with updates on the course website. Exams are closed notes. Review topics and sample questions are provided for each exam. Plan to be present at each exam. If you must miss an exam due to a University event or unusual circumstances, please get in touch with the instructor as soon as possible. The Dean's office must approve missing an exam due to travel plans.

* Exam #1 - Monday, September 22
* Exam #2 - Monday, October 20
* Exam #3 - Monday, November 17
* Final Exam - Wednesday, December 10, 10:30 a.m. to 12:30 p.m.

The**working course schedule** below may change slightly to meet course needs. Check the class website for updates.

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| **Week** | **M** | **W** | **F** | **Reading** | **Topics** |
| **1** | 8/25 | 8/27 | 8/29 | 1 | Fundamentals, Recursion |
| **2** | 9/1 | 9/3 | 9/5 | 2 | ADT, OOP |
| **3** | 9/8 | 9/10 | 9/12 | TBA | Arrays, Stacks, Queues |
| **4** | 9/15 | 9/17 | 9/19 |  | Sets |
| **5** | **9/22** | 9/24 | 9/26 | 3, 4 | Linked Lists |
| **6** | 9/29 | 10/1 | 10/3 | 11 | Sorting, Analysis (Big O) |
| **7** | 10/6 | 10/8 | 10/10 | TBA | Java Collections |
| **8** | 10/13 | 10/15 | 10/17 |  |  |
| **9** | **10/20** | 10/22 | 10/24 | 6, 7, 8 | Trees |
| **10** | 10/27 | 10/29 | 10/31 | 9, 10 | Heaps |
| **11** | 11/3 | 11/5 | 11/7 | 5 | Hashing |
| **12** | 11/10 | 11/12 | 11/14 | 12 | Graphs |
| **13** | **11/17** | 11/19 | 11/21 |  | TBA |
| **14** | 11/24 | 11/26 | 11/28 | TBA |  |
| **15** | 12/1 | 12/3 | 12/5 |  | Project Presentations |
| **16** | **Final Wednesday, December 10th, 10:30 am** | | | | |

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