Course Syllabus

Course Information

CMP 246
Data Structures and Algorithms
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Term, year, dates and times can be found in the schedule of the course

Preliminary Class Plan and Topics

Please see the schedule provided in the course.

Communicating With the Instructor

This course uses a "three before me" policy in regards to student to faculty communications. When questions arise during the course of this class, please remember to check these three sources for an answer before asking me to reply to your individual questions:
1. Course syllabus
2. Announcements in Canvas
3. The "About Programming" discussion board

This policy will help you in potentially identifying answers before I can get back to you and it also helps your instructor from answering similar questions or concerns multiple times.

If you cannot find an answer to your question, please first post your question to the "About Programming" discussion board. Here your question can be answered to the benefit of all students by either your fellow students who know the answer to your question or the instructor. You are encouraged to answer questions from other students in the discussion forum when you know the answer to a question in order to help provide timely assistance.

If you have questions of a personal nature such as relating a personal emergency, questioning a grade on an assignment, or something else that needs to be communicated privately, you are welcome to contact me via email or phone. My preference is that you will try to email me first. Please allow 24 hours for me to respond to emails Monday-Friday and 48 hours on the weekend.

If you have a question about the technology being used in the course, please contact the Doane University Service Center for assistance (contact information is listed below).

Course Catalog Description

This course focuses on abstract data types, such as lists, stacks, queues, graphs, and trees, and the design, implementation, and efficiency of the algorithms for processing these

structures. More advanced searching and sorting techniques that those studied in IST 146 will be introduced and analyzed. Upon completion of this course, you will be able to utilize data abstraction to solve a wider variety of computational problems and to analyze the efficiency of their solutions. In addition, we will study the C++ language, implementations of many of these data structures, and provide an introduction to portions of the the C++ Standard Template Library.

Course Prerequisites

CMP 146

Course Textbook and Materials

Required
    None

Required Technology
Canvas, an ISO/IEC 14882-compliant C++ 11 compiler, Zoom, Screencast-o-matic

Learning Objectives

Course Objectives: By the end of this course, students should be able to:

1. Evaluate a variety of data structures, such as a) lists, b) stacks, c) queues, d) trees, and e) graphs, and select the appropriate structure(s) to solve a variety of problems
2. Implement a variety of data structures, such as a) lists, b) stacks, c) queues, d) trees, and e) graphs, using the C++ programming language
3. Design and implement algorithms to efficiently insert, remove, and search for data in a variety of data structures
4. Evaluate, select, and implement appropriate, efficient algorithms for searching and / or sorting data
5. Calculate the time complexity of algorithms and express the results using order notation
6. Demonstrate appropriate coding, documentation, and unit testing practices

Course Requirements

Online Course
This is an online course and there will not be any face-to-face class sessions. All assignments and course interactions will utilize internet technologies. You must have a reliable internet connection throughout the duration of the course.

This course uses Canvas for the facilitation of communication between faculty and students, submission of assignments, and posting of grades. The Canvas Course Site can be accessed at https://doane.instructure.com

Attendance in an online course means logging into the Canvas on a regular basis and participating in all of the activities that are posted in the course. In addition, check your Doane University email account regularly, as your instructor may send important information via email.

Attendance/Participation

Doane University expects active participation by a student in a course, whether the course is on-ground or online. A student is expected to be prompt and regularly attend on-ground classes in their entirety. Regular engagement is expected for online courses.

You should plan to work on this course everyday. This is a condensed, fast-paced, course. Expect to spend approximately 18 hours a week preparing for and actively participating in this 8-week course.

Class Preparation
Preparation for class means reading the assigned readings and reviewing all information required for that week.

Computer Requirements
For the successful use of Canvas please refer to Doane University's [minimum computer requirements](). This also includes:

- Reliable computer and internet connection
- A web browser (Chrome or Mozilla Firefox)
- Adobe Acrobat Reader (free)
- Word processing software—Microsoft Word or Google Docs
- Webcam and mic

Campus Network or Canvas Outage
When access to Canvas is not available for an extended period of time (greater than one entire evening - 6pm till 11pm) you can reasonably expect that the due date for assignments will be changed to the next day (assignment still due by midnight).

Drop and Add Dates
If you feel it is necessary to withdraw from the course, please contact your advisor for full details on the types of withdrawals that are available and their procedures.

Federal requirements state that students must complete 75% of the course work to be eligible to receive an incomplete for the course. If students fall more than two weeks behind, they cannot meet this requirement.
==**Online Learning Academy Courses are not eligible for incomplete grades.**==

Academic Integrity
Fundamental to our mission, our core values, and our reputation, Doane University adheres to high academic standards. Students of Doane University are expected to conduct themselves in a manner reflecting personal and professional integrity. Disciplinary actions may be taken against students whose academic behavior is not congruent with the expectations of the University. Students are responsible for adhering to the standards detailed in this policy. Not being familiar with these standards does not mean that the students will not be accountable for adherence to them. Additional details on the Academic Integrity policy for violating academic integrity are published in the undergraduate and graduate catalogs.

http://catalog.doane.edu/content.php?catoid=18&navoid=1448#Academic_Dishonesty

Course Grading
Submitting Assignments

All assignments, unless otherwise announced by the instructor, must be submitted via Canvas. Each assignment will have a designated place to submit the assignment. All material, assignments, and deadlines are subject to change with prior notice. It is your responsibility to stay in touch with your instructor and review the course site regularly to learn about changes to assignments or due dates.

Grading Scale
Assignment of letter grades is based on a percentage of points earned. The letter grade will correspond with the following percentages achieved. All course requirements must be completed before a grade is assigned.

Grading Scheme
Several elements from the course will determine your grade. Most of these elements are assessed on a pass / fail basis.

- Programming Assignments (PAs): You pass a PA by satisfying all of the requirements on its rubric, which is attached to each PA in Canvas.
- Discussion Board Posts (DBs): Your participation in each module's discussion board threads will be graded on a pass / fail basis. If a post meets the specifications in the assignment, you will pass the DB assignment. If your post does not meet the specifications outlined in the assignment, or is missing altogether, then you do not pass the assignment.

Weighted Grading:

- PA category: number of PAs passed divided by the number of PAs assigned.
- DB category: number of DB assignments passed divided by the total number of DA assignments.

Weights for each category:

Category	Weight
PA	80%
DB	20%

Grading scale:

Percent	Grade		Percent	Grade
98 - 100%	A+		77 - 79%	C+
94 - 97%	A		73 - 76%	C
90 - 93%	A-		70 - 72%	C-

87 - 89%	B+		67 - 69%	D+
83 - 86%	B		63 - 66%	D
80 - 82 %	B-		60 - 62%	D-
			< 60%	F

Late or Missed Assignments
All assignments must be completed and turned in to finish the course. Unless you discuss a late assignment with your instructor prior to the assignment due date, your assignment will lose 20% each day it is late.

Feedback
Please allow 1-3 days for feedback on assignments. Please review instructor feedback for assignments and assessments, this will help you reflect on what you have learned while receiving suggestions for improvement.

Technical Support

If you are in need of technical assistance, please access the Self Service Portal - http://help.doane.edu/. You may reach the Service Center at 402-826-8411 or by email at help@doane.edu.

Accessibility Statement

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at Doane University facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. Doane University staff coordinate student transitions from high schools and community colleges, conduct in-service training for faculty and staff, enable the resolution of accessibility issues, conduct community outreach, and facilitate collaboration among Doane University staff on disability policies, procedures, and accommodations.

Disability Services

Doane University's Disability Services Office will provide guidance on accommodations and universal access. To request accommodations please complete the Self-Identification Form and visit the website for additional information.

Academic Support

Doane offers a range of academic support services for students.

For students taking courses online or for our Non-Residential students:
https://www.doane.edu/graduate-and-adult/academic-support

For students taking courses on our Crete campus:
https://www.doane.edu/students/resources/academic-support

Title IX Requirements: Mandatory Reporting

At Doane, all university employees, including faculty, are considered Mandatory Reporters. As a Mandatory Reporter, I am required to report incidents of sexual misconduct and relationship violence to the Title IX Coordinator and, thus, cannot guarantee confidentiality. This means that if you tell me about an incident of sexual harassment, sexual assault, domestic violence, dating violence, stalking and/or other forms of prohibited discrimination, I have to share the information with the University's Title IX Coordinator. My report does not mean that you are officially reporting the incident. This process is in place to ensure you have access to and are able to receive the support and resources you need. For additional information, including confidential resources, please visit the [Campus Advocacy, Prevention, and Education (CAPE) Project](#).

Instructional Technology Accessibility and Privacy Policies

If your course uses additional technology tools, information on the [technology's accessibility and privacy is available on our website](#).

Syllabus Disclaimer

The instructor and Doane University views the course syllabus as an educational contract between the instructor and students. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. The instructor reserves the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email or in the course site Announcements. Please remember to check your Doane University email and the course site Announcements often.

Doane Syllabus Addendum

Each student is responsible for being aware of the policies, resources, and expectations as specified in the Doane Syllabus Addendum located at:
https://www.doane.edu/Syllabus