



## SYLLABUS

<b>Course Title</b>	Data Structures and Algorithms
<b>Course Number</b>	IST 246
<b>Number of Credits</b>	3
<b>Course Dates</b>	1/15/20 - 3/7/20    Wednesdays, 8:00 - 10:30 PM
<b>Instructor</b>	Steven Millet
<b>Email Address</b>	steven.millet@doane.edu
<b>Office Hours/Availability</b>	I am available before or after class. Email anytime. Immediate response between 10 AM – 12 AM daily, 10 hour delay thereafter
<b>Phone Number</b>	Phone texts can be sent directly to my Doane Email account. Just be sure you include your name and course number.
<b>Textbook Information: (e.g. title, edition, publisher, ISBN)</b>	No textbook required, Instructor will supply handouts to go along with lectures and course content materials.
<b>Additional Course Materials</b>	Flash (thumb) Drive for saving backups
<b>Course Description</b>	A course focusing on abstract data types, such as linear lists, linked lists, stacks, queues, graphs, and trees, and the design, implementation, and efficiency of the algorithms for processing these

	<p>structures. More advanced searching and sorting techniques will be introduced and analyzed. Upon completion of this course, the student will be able to utilize data abstraction to solve a wide variety of computational problems using various data structures and to analyze the efficiency of their solutions.</p>
<b>Program Outcomes</b>	<ul style="list-style-type: none"> <li>a. Develop analytical and critical thinking skills to gather and analyze information, to identify and solve problems, to determine potential outcome alternatives, and to make appropriate decisions</li> <li>b. Recognize ethical issues involved in information technology and its management</li> <li>c. Understand information science and technology concepts and processes, their relationships to each other, and their relationships to existing and emerging computing technologies</li> <li>d. Develop the confidence and the skill to learn independently and apply existing and emerging computing technologies and processes</li> <li>e. Develop the confidence and the skill to solve an unknown problem and to efficiently research, learn, and apply a previously unknown topic or skill to a novel problem- solving situation</li> </ul>
<b>Course Learning Outcomes/Objectives</b>	<ul style="list-style-type: none"> <li>1. Understand the software development life cycle as it applies to program structure planning.</li> <li>2. Have an understanding of advanced data structures such as linked lists, stacks, queues, trees, and graphs.</li> <li>3. Understand how to implement advanced algorithms, as part of the problem solving process.</li> <li>4. Evaluate templates included in the C++ standard template library.</li> <li>5. Understand how these implementations apply to C# as well.</li> </ul>
<b>Technology Requirements</b>	<p><a href="https://www.doane.edu/faq/minimum-computer-requirements">https://www.doane.edu/faq/minimum-computer-requirements</a></p>

## Course Schedule

Week or Module	Topic	Content	Assessments Matched to Learning Outcomes	Due Date & Time
1	Introduction to Data Structures and Algorithms	Course Overview SWDLC Using VS.net IDE	(LO1) Lab #1	Week 2 by 6 p.m.
2	Software Engineering Principles	Design a Program and Software Team Development	(LO3) Lab #2	Week 3 by 6 p.m
3	ADT C++ Library	Using and Modifying Code	(LO2) Lab #3	Week 5 by 6 p.m
4		Midterm Exam		
5	Linked Lists	Advanced Data Storage	(LO2) Lab #4	Week 6 by 6 p.m
6	Stacks, Queues and Trees	User Defined Algorithm Development	(LO2) & (LO3) Lab #5	Week 7 by 6 p.m
7	Sorting	Algorithm Development		
8		Final Exam		

## Grading Assessments

Type of Assessment	Assignments	Percent of Total
Homework (Labs))	5	35
Exams	2	40
Quizzes	2	15
Class Participation	Weekley	10

## Grade Scale

A+ = 97-100%    A = 94-96%    A- = 90-93%    B+ = 87-89%    B = 84-86%    B- = 80-83%

C+ = 77-79%    C = 74-76%    C- = 70-73%    D+ = 67-69%    D = 64-66%    D- = 60-63%

F= 59% or below

<b>Participation Policy</b>	A student is expected to be prompt and regularly attend on-ground classes in their entirety. Regular engagement is expected for on-line courses. Participation in class discussions is an integral part of your grade.
<b>Study Time</b>	Expectation of the amount of time the course requires students to spend preparing and completing assignments. Typically, students could expect to spend approximately 12 hours a week preparing for and actively participating in this 8-week 3 credit hour course. This actual time for study varies depending on students' backgrounds.
<b>Late Work</b>	Late work will be accepted, if for an excused reason with no reduction in grade.

<b>Submitting Assignments</b>	Assignments submitted during class time
<b>Communication Policy including Assignment Feedback</b>	Emails will be responded to by the end of the day M - F. Assignments will be returned the week following their due date. Assignments will be returned or assignment grade available one week after they are submitted for grading.
<b>Academic Integrity Policy</b>	<p>Doane University expects and requires all its students to act with honesty and integrity and respect the rights of others in carrying out all academic assignments. Academic dishonesty, the act of knowingly and willingly attempting or assisting others to gain academic success by dishonest means, is defined in four categories:</p> <ol style="list-style-type: none"> <li>1. Cheating - "Intentionally using or attempting to use unauthorized information or study aids in an academic exercise."</li> <li>2. Fabrication - "Intentional and unauthorized falsification of invention or any information or citation in an academic exercise."</li> <li>3. Facilitating Academic Dishonesty - "Intentionally or knowingly helping or attempting to help another to commit an act of dishonesty," and/or coercing others to do the same.</li> <li>4. Plagiarism - "Intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise," in both oral and written projects.</li> </ol> <p><i>Gehring, D., Nuss, E.M., &amp; Pavela, G. (1986). Issues and perspectives on academic integrity. Columbus, OH: National Association of Student Personnel Administrators</i></p> <p>For more information on the sanctions for academic dishonesty, please visit the website:  <a href="http://catalog.doane.edu/content.php?catoid=18&amp;navoid=1448#Academic_Dishonesty">http://catalog.doane.edu/content.php?catoid=18&amp;navoid=1448#Academic_Dishonesty</a></p>
<b>Academic Support</b>	<p>Please contact academicsupport@doane.edu  <a href="https://www.doane.edu/graduate-and-adult/academic-support">https://www.doane.edu/graduate-and-adult/academic-support</a></p>
<b>Disability Services</b>	<p><a href="https://www.doane.edu/disability-services">https://www.doane.edu/disability-services</a>  Doane University supports reasonable accommodations to allow participation by individuals with disabilities. Any request for accommodation must be initiated by the student as soon as possible. Each student receiving accommodations is responsible for his or her</p>

	educational and personal needs while enrolled at Doane University. Please contact 402-467-9031 for assistance.
<b>Military Services</b>	<a href="https://www.doane.edu/graduate-and-adult/military">https://www.doane.edu/graduate-and-adult/military</a>
<b>Anti-Harassment Policy</b>	<a href="http://catalog.doane.edu/content.php?catoid=5&amp;navoid=452">http://catalog.doane.edu/content.php?catoid=5&amp;navoid=452</a>
<b>Grade Appeal Process</b>	<a href="http://catalog.doane.edu/content.php?catoid=5&amp;navoid=238">http://catalog.doane.edu/content.php?catoid=5&amp;navoid=238</a>
<b>Credit Hour Definition</b>	Doane University follows the federal guideline defining a credit hour as one hour (50 minutes) of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks (one semester), or the equivalent amount of work over a different time period (e.g., an 8-week term). This definition applies to courses regardless of delivery format, and thus includes in-person, online, and hybrid courses (combination of in-person and online). It also applies to internship, laboratory, performance, practicum, research, student teaching, and studio courses, among other contexts.
<b>Syllabus Changes</b>	Circumstances may occur which require adjustments to the syllabus. Changes will be made public at the earliest possible time.