



Course Number and Title: CIS 211 Data Structures

Campus Location:

Georgetown, Dover, Wilmington

Effective Date:

2020-52

Prerequisite:

CSC 210

Co-Requisites:

none

Course Credits and Hours:

4.00 credits

3.00 lecture hours/week

2.00 lab hours/week

Course Description:

This course introduces the basic concepts, construction, and efficient implementation of data structures such as abstraction, multidimensional arrays, stacks, queues, recursion, linked lists, searching, sorting, and trees.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore.

Check your course schedule for the course number and section.

Additional Materials:

None

Schedule Type:

Classroom Course

Video Conferencing

Web Conferencing

Hybrid Course

Online Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Differentiate among the principal types of data structures, including abstraction, multidimensional arrays, stacks, queues, recursion, linked lists, searching, sorting, and trees. (PGC 2, 3, 4)
2. Construct and use data structures in programs and applications. (CCC 2, 5, 6; PGC 2, 3, 4)
3. Evaluate different data structures. (CCC 2, 5; PGC 3, 4)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Differentiate among the principal types of data structures, including abstraction, multidimensional arrays, stacks, queues, recursion, linked lists, searching, sorting, and trees.
 1. Describe primitive and abstract data types.
 2. Explain abstraction, multidimensional arrays, stacks, queues, recursion, linked lists, searching, sorting, and trees in computer programs.
 3. Compare and contrast how principal types of data structures are used to construct computer programs.
2. Construct and use data structures in programs and applications.
 1. Identify the steps to incorporate data structures in programs and applications.
 2. Illustrate the use of each data structure in real world applications.
 3. Create computer programs using different data structures.
3. Evaluate different data structures.
 1. Compare and contrast the performance of different data structures.
 2. Demonstrate the performance of alternative implementations of data structures.
 3. Explain the costs and benefits of dynamic and static data structure implementations.
 4. Select and implement the appropriate data structure for a given set of problem specifications.
 5. Write and document program code and data structures to improve readability and maintainability.

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Install, configure, and secure computer applications and operating systems.
2. Design, write, and debug computer programs.
3. Design and integrate databases in computer programs
4. Analyze and design complex computer applications to solve business problems.
5. Integrate the principles of the Internet into web development.
6. Incorporate the principles of networking and information security in computer application development.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.