Cuyahoga Community College
Eastern Campus Information Technology
IT 2660 Data Structures & Algorithms
Spring, 2022

Instructor Information

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Course Information

Course Title	IT 2660 Data Structures & Algorithms 12390
Class Time	None - Online Course
Classroom	**Online**
Prerequisites	IT-2650 Java Programming
Credit Hours	4.0
Lecture Hours	3.0
Lab Hours	2.0

Course Catalog Description

"Programming and problem-solving skills are further developed by using language features to implement various data structures such as stacks, queues, linked lists, trees and graphs. Additional topics include recursion, sorting, searching, and hashing algorithms."

ONLINE COURSE

- Take the eLearning Orientation to learn more about online courses.

Textbook

- **Data Structures and Algorithms Using Java** (by William McAllister)

Attendance and Participation

Please expect to spend at least 12 hours per week studying the material, as this is a 4 credit hour course. Data Structures and Algorithms involve quite a bit of quantitative and analytical thinking, and as such usually have a reputation as some of the hardest classes in a Computer Science curriculum. Please expect the material to be very challenging, and be prepared to put the full amount of time and effort into applying yourself and engaging with your fellow students to learn the material.

7/31/2012

Methods of Evaluation / Grading Policy

The course grade will be determined by a total of **400 available points**, consisting of:
- Eight (8) normal assignments worth **40 points each**. (320 total)
- A Ninth (9th) assignment to act as the final project, worth **80 points**. (80 total)

Final Grade Calculation
- A: 360-400
- B: 320-359
- C: 280-319
- D: 240-279
- F: <240

*Failure to attempt and properly submit the final exam will result in a failure in the course.

Course Calendar

Week Begins	Topics Covered	Assignment
Thursday, January 20	**Review Syllabus & Blackboard**	
Thursday, January 27	**First Zoom Meeting - Course Overview**	
Thursday, February 3	Chapter 1 - Java Review	Assignment 1
Thursday, February 10	Chapter 2 - Array Based Structures	Assignment 2
Thursday, February 17	Chapter 3 - Restricted Structures	Assignment 3
Thursday, February 24	Chapter 4 - Linked Lists and Iterators	Assignment 4
Thursday, March 3	Chapter 5 - Hashed Data Structures	Assignment 5
Thursday, March 10	**Midterm Review**	
Thursday, March 17	**SPRING BREAK**	
Thursday, March 24	Chapter 6 - Recursion	Assignment 6
Thursday, March 31	Chapter 6 - Recursion (continued)	
Thursday, April 7	Chapter 7 - Trees	Assignment 7
Thursday, April 14	Chapter 7 - Trees (continued)	
Thursday, April 21	Chapter 8 - Sorting	Assignment 8
Thursday, April 28	Chapter 9 - Graphs (this Assignment is the "Final Project")	
Thursday, May 5	Chapter 9 - Graphs (continued)	
Thursday, May 12	**FINAL EXAM WEEK -- Final Project due by Friday Dec. 17th**	**Assignment 9**

Course Logistics

The course is divided into 9 sections of material, one for each chapter in the textbook. Every section of this course has accompanying online materials on Blackboard. You are required to read the textbook, practice the given exercises given in the textbook, as well as any supplemental material provided on Blackboard. There will be one assignment for each chapter, worth 40 points, that will not have a due date but should be completed in time for you to move on to the next chapter so that you do not fall behind. Chapter 9's assignment is the "Final Project", so it will be worth 80 instead of 40 points.

Forums, and Collaboration

Collaboration is encouraged in the online forums. It is fine to post code snippets and ask questions about your code, and it is even better to provide feedback for other students' questions and code examples. On the other hand, copying others' work directly is considered cheating and will not be tolerated. If you feel lost and do not understand something, then ask your classmates for help in the online forums and try to articulate what it is that is confusing you. Learning how to collaborate with others is an essential part of learning to be a software developer, so please try and read your classmates' posts and reply to them if you have any constructive insight. For each of the 9 chapters, I will create a forum for your collaboration. Students who express confusion about the material but have not even attempted to engage their classmates with questions on Blackboard will not be given extensions or accommodations.

Assignment Submission

- All assignment submissions **must be done via Blackboard** so that you can receive a grade.
- This means you **must go to Blackboard and submit your work to receive credit**.
- Assignments will be available in the "Course Material" sections at the start of each new chapter.
- You may work in groups, but you must submit your own assignment individually.
- Copying the work of others without contributing or understanding is considered cheating.

Final Exam

- Assignment 9 is the Final Assignment and is worth 80 points.
- This "Final" submission process is identical to how you have submitted your previous assignments.
- You may use your notes and online resources, but you must work alone on the final assignment.
- **Failure to attempt and properly submit the final assignment will results in failure in the course.**

Course Correspondence

Blackboard and your Tri-C email may be used to correspond with your classmates and the instructor. You are encouraged to collaborate with your classmates. **Blackboard (not e-mail)** should be your **first choice** for questions so that the entire class will be able to benefit from the answer to your question. You should only use e-mail if your question will not benefit the other students or is of a personal nature. **For urgent matters, please attempt to contact the instructor via text/phone, for a quicker response.** E-mails to the instructor should generally be replied to within 24 hours. Be advised that Blackboard Announcements are sent to official tri-c emails, so *if you intend to use your personal e-mail address, you will not receive any Blackboard announcements*. To be safe make sure you **Check Blackboard Every Day** for updates and announcements.

OUTCOMES / OBJECTIVES

Upon satisfactory completion of **IT 2660 - Data Structures & Algorithms**, the student should be able to perform the following outcomes and supporting objectives:

- **Analyze problems, design and implement programming solutions using data structures and complex algorithms.**

Supporting Objectives

- Analyze simple data structure problems, defining necessary input, output, and processes.
- Design programming solutions independent of programming languages.
- Code data structure algorithms in programming language based on results of analysis and design.
- Examine the advantages and disadvantages of using various data structures and algorithms.
- Analyze various data structures and their operations at a logical level.
- Examine the processing efficiency and memory space requirements of data structures and algorithms to make design decisions.
- Implement data structure logic and syntax.
- Use accepted language style conventions and documentation.
- Test, debug, and correct program code.
- Produce executable programs using data structures and algorithms.

ACADEMIC CREDIT

Academic Credit According to the Ohio Department of Higher Education, one (1) semester hour of college credit will be awarded for each lecture hour. Students will be expected to work on out-of-class assignments on a regular basis which, over the length of the course, would normally average two hours of out-of-class study for each hour of formal class activity. For laboratory hours, one (1) credit shall be awarded for a minimum of three laboratory hours in a standard week for which little or no out-of-class study is required as three hours will be in the lab (i.e. Laboratory 03 hours). Whereas, one (1) credit shall be awarded for a minimum of two laboratory hours in a standard week, if supplemented by out-of-class assignments which would normally average one hour of out of class study preparing for or following up the laboratory experience (i.e. Laboratory 02 hours). Credit is also awarded for other hours such as directed practice, practicum, cooperative work experience, and field experience. The number of hours required to receive credit is listed under Other Hours on the syllabus. The number of credit hours for lecture, lab and other hours are listed at the beginning of the syllabus. Make sure you can prioritize your time accordingly. Proper planning, prioritization and dedication will enhance your success in this course. The standard expectation for an online course is that you will spend 3 hours per week for each credit hour.

ACCESSIBILITY STATEMENT

If you need any special course adaptations or accommodations because of a documented disability, please notify your instructor within a reasonable length of time, preferably the first week of the term with formal notice of that need (i.e. an official letter from the Student Accessibility Services (SAS) office). Accommodations will not be made retroactively. For specific information pertaining to ADA accommodation, please contact your campus SAS office or visit online at http://www.tri-c.edu/accessprograms.

Blackboard Accessibility Information is available at http://access.blackboard.com.
- Eastern (216) 987-2052 – Voice 2 IT-1090: Computer Applications
- Metropolitan (216) 987-4344 -Voice
- Western (216) 987-5079 - Voice
- Westshore (216) 987-5079 - Voice
- Brunswick (216) 987-5079 - Voice
- Off-Site (216) 987-5079 - Voice

ATTENDANCE TRACKING

Regular class attendance is expected. Tri-C is required by law to verify the enrollment of students who participate in federal Title IV student aid programs and/or who receive educational benefits through other funding sources. Eligibility for federal student financial aid is, in part, based on your enrollment status. Students who do not attend classes for the entire term are required to withdraw from the course(s). Additionally, students who withdraw from a course or stop attending class without officially withdrawing may be required to return all or a portion of the financial aid based on the date of last attendance. Students who do not attend the full session are responsible for withdrawing from the course(s).

Tri-C is responsible for identifying students who have not attended a course, before financial aid funds can be applied to students' accounts. Therefore, attendance will be recorded in the following ways:

- For in-person courses, students are required to attend the course by the 15th day of the semester, or equivalent for terms shorter than 5-weeks, to be considered attending. Students who have not met all attendance requirements for an in-person course, as described herein, within the first two weeks of the semester, or equivalent, will be considered not attending and will be reported for non-attendance and dropped from the course.

- For blended-learning courses, students are required to attend the course by the 15th day of the semester, or equivalent for terms shorter than 5-weeks, or submit an assignment, to be considered attending. Students who have not met all attendance requirements for a blended-learning courses, as described herein, within the first two weeks of the semester, or equivalent, will be considered not attending and will be reported for non-attendance and dropped from the course.

- For online courses, students are required to login in at least two (2) times per week and submit one (1) assignment per week for the first two (2) weeks of the semester, or equivalent to the 15th day of the term. Students who have not met all attendance requirements for an online course, as described herein, within the first two weeks of the semester, or equivalent, will be considered not attending and will be reported for non-attendance and dropped from the course.

- At the conclusion of the first two weeks of a semester, or equivalent, instructors report any registered students who have "Never Attended" a course. Those students will be administratively withdrawn from that course. However, after the time period in the previous paragraphs, if a student stops attending a class, wants or needs to withdraw, for any reason, it is the student's responsibility to take action to withdraw from the course. Students must complete and submit the appropriate Tri-C form by the established withdrawal deadline.

- Tri-C is required to ensure that students receive financial aid only for courses that they attend and complete. Students reported for not attending at least one of their registered courses will have all financial aid funds held until confirmation of attendance in registered courses has been verified. Students who fail to complete at least one course may be required to repay all or a portion of their federal financial aid funds and may be ineligible to receive future federal financial aid awards. Students who withdraw from classes prior to completing more than 60 percent of their enrolled class time may be subject to the required federal refund policy. If illness or emergency should necessitate a brief absence from class, students should confer with instructors upon their return. Students having problems with class work because of a prolonged absence should confer with the instructor or a counselor.z

Incomplete Grades

Instructors determine grades, subject to the College's policies and procedures. A notation of "I" indicates that a student has not completed all course requirements as a result of circumstances judged by the instructor to be beyond the student's control. Failure to complete such requirements no later than the end of the fifth full week of the next semester will result in an "F" (Failing) grade.

Pass / No Pass

An alternative to a letter grade called Pass/No Pass grade options allows students who want to explore a discipline and/or course to register without the penalty of a grade impacting their grade point average. A student can elect up to 12 credits taken Pass/No Pass to fulfill degree requirements at Cuyahoga Community College. Whereas, audited courses do not count, students may select up to 12 credits of Pass/No Pass that may transfer to another college or university as electives. Some restricted/selective admission program courses require traditional letter grades for their core requirements. Students are responsible for consulting with their program manager or counselor to determine Pass/No Pass grading options.   Once you have registered for a course and select the Pass/No Pass grade options you cannot convert back to a traditional grade option nor can you change a traditional letter grade to a P/NP option for a particular course after the 100% refund period. International students and Post-Secondary Enrollment Options program students are not eligible to utilize the Pass/No Pass option. Courses taken Pass/No Pass count toward financial aid enrollment requirements.

Withdrawal

Regular class attendance is expected. Tri-C is required by law to verify the enrollment of students who participate in Federal Title IV student aid programs and/or who receive educational benefits through other funding sources. Tri-C is responsible for identifying students who have not attended or logged into a class for which they are registered. At the conclusion of the first two weeks of a semester, instructors may report any registered students who have "Never Attended" a class so that those reported students will be administratively withdrawn from that class. However, it is the student's responsibility to withdraw, using the appropriate Tri-C form, from any class which she/he is no longer attending or risk receiving a failing grade in that class. Student's wishing to withdraw must complete and submit the appropriate Tri-C form by the established withdrawal deadline.

Computer and Technology Skill Requirements

You will need basic computer skills and should be comfortable using a word-processing program, browsing for files, copying and pasting between programs. You will need a computer that connects to the Internet. Your student ID number and password are required for access. If you do not own a computer OR if your computer malfunctions during the semester, you will be expected to identify a computer to use. Computers are available at the Public Library and in the Tri-C Technology Learning Centers (TLC) on each campus. Technology problems are not an excuse for missed or late work. The Office of eLearning and Innovation offers Blackboard Orientation. Visit http://dlc.tri-c.edu/learnbb for more information. Computer hardware and software specifications for Blackboard can be found at: http://www.tri-c.edu/onlinelearning.

- **Computer Skills Needed**
    - You must know computer and Internet basics to be successful in this course.
    - Click on "Computer Skills Needed" to review the minimum computer skills required for this course.
- **Technical Requirements**
    - Click on the link "Technical Requirements" for specific information about the Technical Requirements for Blackboard. You can also view the Computer Settings Checklist. To make it easier for you, you can simply click on the Browser Check to automatically check your browser and operating system for compatibility with Blackboard. Browser Check will let you know if you are missing a piece of software and how to update your computer. Make sure to give the link a few moments to load and generate a report.
- **Learn to Use Blackboard**
    - Learning to use Blackboard is important to being a successful student online. If you are unfamiliar with how to use Blackboard, click on the "Learn to Use Blackboard" link to view interactive tutorials and access printable resources that can help you.

Student Services & Resources

Click on **Student Services & Resources** to learn more about the Student Support Services available to ALL Tri-C Students. The takes you to a one-page document that includes information on how to contact the following offices:

- Access Office (Students with Disabilities)
- Admissions and Records
- The Assessment Center
- Bookstore
- Campus Police
- Counseling
- Financial Aid
- Library
- Tutoring
- Career Center
- Student Life
- Technology Learning Centers (TLCs)

Technical Help

If you experience a technical problem, you should call the 24/7 Customer Care Technical Support at 216-987-HELP to receive technical phone support in the following areas:

- Blackboard
- Internet Explorer
- Login issues (password resets) for My Tri-C Space
- Microsoft Office (Word, Excel, PowerPoint)
- Navigation of My Tri-C Space
- Tri-C email

Some technical support issues may not be able to be resolved over the phone. While the Customer Care Technical Support team will work diligently to assist students, it is possible that personal computer problems may require the student to contact outside technical support for assistance. There are computers available for student use at each Campus Technology Learning Center (TLC) and your local public library. These resources should be used to keep up with your coursework while you work to resolve a computer problem.

CONCEALED CARRY STATEMENT

College policy prohibits the possession of weapons in the classroom by students, faculty and staff, unless specifically approved in advance as a job-related requirement (i.e., Tri-C campus police officers). This policy applies to all students, faculty and staff without regard to any concealed handgun license or permit an individual may possess.

As a Tri-C student, your behavior on campus must comply with the student code of conduct which is available within the Tri-C student handbook, available athttp://www.tri-c.edu/handbook. You must also comply with the College's Zero Tolerance for Violence on College Property Policy available at:

http://www.tri-c.edu/policies-and-procedures/documents/3354-1-20-10-zero-tolerance-for-violence-policy.pdf

Campus Security and Student Safety

Campus Police and Security Services are dedicated to protecting life and property, while detecting and preventing crime. The department includes police officers, detective bureau, K-9 patrol, security officers, dispatchers, administrative staff, and student patrols.

http://www.tri-c.edu/administrative/campuspolice/Pages/default.aspx

When on campus always take note of the two nearest exits and emergency signs in all classrooms. If there is an emergency please call 216-987-4911 (instead 911) to assist outside emergency vehicles to be directed to the needed area on campus by the campus police.

FOR ASSISTANCE OR TO REPORT A CRIME CALL:
Non-emergencies: 216-987-4325
Emergencies: 216-987-4911

If there is an emergency alarm informing all to evacuate or a fire alarm, immediately take your personal belongings with you. Do not reenter the building until notified by emergency personnel. If there is an alarm for seeking shelter due to inclement weather, go to the lowest level and stay away from windows. Follow the directions of the announcements. A "Lock Down" announcement will require all campus members to stay in the building and not to evacuate/leave.

Student Conduct and Academic Honor Code

Any student found to have committed or to have attempted to commit any act of dishonesty, including cheating, plagiarism, or other forms of academic dishonesty, is subject to the disciplinary sanctions outlined in the Student Judicial System. Refer to the Student Conduct Code 3354:1-30-03.5 and Student Judicial System 3354:1-30-03.6 for more information about violations and College disciplinary procedures. The Student Conduct and Academic Honor code can be accessed via My Tri-C Space on the Student Services tab.
- Penalties for Academic Dishonesty are defined in the Student Judicial System 3354:1-30-03.6 - (D) Sanctions.
- Plagiarism as Academic Dishonesty is defined in Tri-C Student Handbook via My Tri-C Space on the Student Services tab under College Guidelines.

Netiquette Statement

> *etiquette n. forms of proper or polite behavior in society; good manners*
> *net n. an abbreviation for internet*
> *netiquette n. proper or polite behavior on the internet*

Communication is very important in this course. To maintain a positive online environment, each of us is expected to follow these netiquette guidelines. Be advised that rules for student conduct apply in the online environment. Any use of electronic communication on Tri-C's network, which includes Blackboard, Tri-C email, etc. for flaming or other kinds of harassment may be treated as a student conduct violation under the Student Conduct Code (accessible via My Tri-C Space on the Student Services tab).
- Show respect for the instructor, other students, and for the privacy of those in the online environment. Nothing threatening is ever appropriate.
- Express differences of opinion in a polite and rational way, maintaining a supportive academic environment.
- Stay focused by avoiding irrelevant topics in discussion or collaborative activities.
- Use proper capitalization and punctuation rules. Use of all uppercase in a message is the equivalent of shouting and is considered offensive.

CORONAVIRUS/COVID-19 STATEMENT

For the most up to date COVID Guidelines, please frequently check:

https://www.tri-c.edu/administrative-departments/business-continuity/covid-19/index.html

Students are responsible for adhering to all College health and safety guidance, including that which relates to the COVID-19 pandemic. Public health requirements and standards are changing rapidly, and the College is adapting its guidance accordingly. Please check your Tri-C email and visit tri-c.edu/coronavirus regularly for updates.