LONE STAR
COLLEGE
CyFAIR

Instructor contact information

Instructor:	Dr. Nina Javaher	Office Phone:	281-290-3225
Office:	Tech 200N	Office Hours: Tuesdays and Thursdays 11:30 – 2:00	
E-mail	Nina.javaher-tarash@lonestar.edu	Mondays and Wednesdays: by appointment	

Welcome to COSC 1337

Course Title:	Fundamental III -Data Structure and Algorithm	Term and Year: Spring 2017	
Course Subject:	COSC		
Course Number:	2336	Class Days & Times: Online	
Credit Hours:	3*		
Lecture Hours:	3	Class Room Location: Online	
Lab Hours:	2		
External Hours:			
Total Contact Hours: (All hrs. x 16)	80*		

Disclaimer: At LSC the contact hours represent the workload not the credit hours. For example, an 80 contact hours course at LSC is equivalent to a 4 credits course at other institutions.
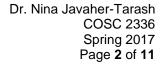
Course overview

Catalog Description:

Further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. Topics include data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), searching, sorting, recursion, and algorithmic analysis. Programs will be implemented in an appropriate object oriented language.

Student Learning Outcomes:

Upon successful completion of this course, students will:

1. Design and develop programs that implement basic data structures, including stacks, queues, linked lists, hash tables, trees, and graphs.

2. Apply recursive techniques and algorithms to solve problems.

3. Implement searching and sorting algorithms.

4. Understand algorithm efficiency, Big-O notation, and why it should be considered in programming.

5. Analyze and select appropriate data structures to implement a solution to a problem.

6. Design and implement data structures using classes and incorporating object-oriented concepts.

7. Demonstrate best practices of software development including testing, validation, and documentation.

In our efforts to prepare students for a changing world, students may be expected to utilize computer technology while enrolled in classes, certificate, and/or degree programs within LSC.

The specific requirements are listed below:

Utilization of D2L, MyProgrammingLab, LSC-Online tools including but not limited to email, assessments, notes, assignments, discussion board, chat, document and file download, and group collaboration.

Prerequisites: COSC 1337; OR placement by testing

Co-requisites: ENGL 0305 AND ENGL 0307 or 0356,

Material:

- **Text Book: Data Structures and Algorithms in C++ 2nd Edition**
- **by Michael T. Goodrich (Author), Roberto Tamassia (Author), David M. Mount (Author)**
  - ISBN: 978-0-470-38327-8
- High speed internet

- Visual Studio 2015 (free from the Microsoft Imagine account)

- Google Chrome or Internet Explorer latest version

- USB drive 10 GB or higher Or Cloud Storage (OneDrive, Google Drive)

Instructor guidelines and policies:

Important note:

Programming projects/assignments are designed to help understand how the concepts are implemented and used in various situations. These assignments constitute as an integral part of the course. **They can be *very time-consuming* and require that you start working on them early and budget your time wisely.**

NETIQUETTE rules to be followed at all times:

Communication via text can be difficult. In the online environment we are not able to see the subtle facial and body cues that enable us to clearly understand the meaning that is intended. Courtesy is needed in both postings and responses. All postings to the discussion boards must remain respectful and classroom appropriate. Misuse of the discussion boards or other communication tools in this course will not be tolerated. Offenders may lose credit and/or be referred to the dean for potential disciplinary review. Some guidelines for courteous online communication are as follows:

• Do not dominate any discussion. Give other students the opportunity to join in the discussion.

• Do not use offensive language. Present ideas appropriately.

• Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.

• Popular emoticons such as ☺ can be helpful to convey your tone but do not overdo or overuse them.

• Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.

• Never make fun of someone's ability to read or write.

• Share tips with other students.

• Keep an "open-mind" and be willing to express even your minority opinion. Minority opinions have to be respected.

- Think and edit before you push the "Send" button.

- Do not hesitate to ask for feedback.

- Using humor is acceptable but be careful that it is not misinterpreted. For example, are you being humorous or sarcastic?

Response Time:

The instructor will respond to all emails within 24-hours Monday – Thursday. Messages sent after noon on Friday's, over the weekend or during holidays will be responded to the next business day.

Attendance/Participation:

In an online class, participation includes (but is not limited to) logging in at least 3 times a week, posting in discussions, communicating with class members, communicating with instructor, completing items in the online environment. Students are expected to access the online course regularly and actively participate throughout the course.

The instructor may drop a student from class if the student has not participated in class for period's equivalent to **one week** of class, and has not provided reasonable and timely explanations.

Although the instructor reserves the right to drop a student for excessive absence, it is ultimately the student's responsibility to drop the course should they need to do so. **The instructor will not be held responsible for a failing grade caused by incomplete quizzes, exams, assignments, etc., due to excessive absences.**

Online Activiy:

These activities are short activities that will be posted on D2L or will be emailed to students details and instructions will be posted with each activity. This will be counted towards your participation point.

Assignments/Projects:

Assignments are administered and submitted through LSC-Online and MyProgrammingLab. All assignments will have a due date for submission. Assignments will not be accepted after the due date.

Programming projects/assignments are designed to help understand how the concepts are implemented and used in various situations. These assignments constitute as an integral part of the course. They can be very time-consuming and require that you start working on them early and budget your time wisely.

> **Dropbox assignments:** Several assignments require the submission of files via a D2L dropbox. Detailed tutorials and instructions are provided within the D2L course.

Quizzes and exams:

Quiz questions are based on your book and administered via the D2L course. Quizzes are open book, open note. There are no makeup quizzes after the due date. You may contact your instructor about taking them early if you know you will be missing the due date (i.e. court appointment, funeral, work obligations, etc.).

Technical issues: This course requires the use of various technologies. If you have a technical problem, you should contact technical support. You should be prepared to provide your **incident number** to your instructor for a technical issue.

> Technical issues with **D2L** should be reported to LSC-Online Technical Support. They are available 24/7 and their contact information can be found at: http://www.lonestar.edu/lsc-online/student-support.htm

Discussions: Discussions are over the programming section of the course. Each discussion may focus on the following course learning outcomes.

- Design, code, test, and debug programs in an object oriented programming language.
- Create programs using object oriented concepts of encapsulation, subclassing, inheritance, and polymorphism.
- Incorporate complex input/output file handling techniques including record, record types, different techniques for placing records on disk querying databases, and security of applications.
- Create programs features such as pointer, references, arrays, overloading functions/methods, recursion and exception handling.

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- Implement Object Oriented features of the language such as Classes, Inheritance, Polymorphism, and Friend Classes, for more code reuse and better design.
- Identify different roles and responsibilities of clients and servers in a web based environment

GRADE DETERMINATION:

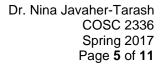| Your grade will be determined by the following	Total %
Projects /Assignments They can be very time-consuming and require that you start working on them early and budget your time wisely. 3@100 pnts each	35
Discussions 8@50 pnt each	20
Short Quizzes (Timed - Lockdown Browser with or without web cam may be enforced) 8@25pnts each	20
Exams (Timed - Lockdown Browser with or without web cam may be enforced) 1 midterm and 1 comprehensive final Exam	15
Participation Meaningful participation in video quizzes and/or webx meetings and/or discussions and/or online weekly activities. We may have all or one of the mentioned activities through out the semester.	10
Total: 100%	

LETTER GRADE ASSIGNMENT:

Letter Grade	Final Average in Percent
A	90 – 100
B	80– 89
C	70 – 79
D	60 – 69
F	Below 60

Department/Division Contact: CIT Department Chair – Heather Cannon – 281-290-3248

Division 3 Dean – Kimberly Hubbard – Dean's Assistant: 832-482-1045

See tentative schedule on the last page

Extenuating circumstances:

If you have an extenuating circumstance during the semester, please discuss this with your instructor as he/she **may** make an exception in the no late work policy. This is not a guarantee of an instructor accepting something late. Extenuating circumstances are **unexpected and unavoidable situations**. This would be things such as hospitalization or car wreck. Forgetting about the test, a busy work/school schedule, being out of town, your own personal Internet connection, etc. does not qualify as an extenuating circumstance. Students should be prepared to provide documentation for any extension request.

Due Dates:

All items are due on Sunday at 11:30 pm Central Standard Time on the date specified unless noted otherwise. Please make sure to allow appropriate upload and submission time for all items in the course. Itemized due dates are available at D2L

Technical issues:

This course requires the use of various technologies. If you have a technical problem, you should contact technical support. You should be prepared to provide your **incident number** to your instructor for a technical issue.

> D2L Technical issues should be reported to LSC-Online Technical Support. This is available 24/7. Contact information can be found at: http://www.lonestar.edu/lsc-online/student-support.htm

Grade Questions/Challenge:

If you feel that the grade you receive on an item (exam, assignment, quiz, etc.) is incorrect, you should talk to or email the instructor about the grade as soon as possible. You have **one week** from the time the grade is returned (or posted in D2L or other program used by the class) to question/challenge a grade. This includes if you feel there were problems in a test (i.e. not releasing correctly, technical issues, etc.). Grades not questioned/challenged within one week will be assumed correct and will be posted as is. Once a grade has been posted and the one week period passed, the grade will not be changed for any reason.

Incomplete – "I"

Incompletes are given in extenuating circumstances only (when a student has a serious illness or some other emergency that prevents him or her from completing part of the course). This is not designated for students who fall behind in their work or those who misjudged the demands or ignored the deadlines of the course.
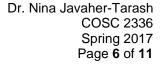
Details about Incompletes:

- A student must have completed at least 75% of the coursework.
- A student must hold a passing grade on that coursework.
- The I-contract must be completed by the instructor and signed by the student.
- The Dean must approve the I-contract.
- The work is due by the end of the next long semester unless stated otherwise in the details of the I-contract or on the form.
- All elements of the I-contract must be completed.
- If a student does not complete all elements of the I-contract, the student's grade will be changed to an "F", regardless of their grade going into the I-contract.
- Re-enrollment in the course is not a valid means to change a mark of "I"

Final Examinations

A final evaluation activity will occur during the published final evaluation period. The appropriate dean must approve any variation to this schedule.

Evaluation of Instruction

Lone Star College-CyFair is committed to acting intentionally about student success. As part of its institutional effectiveness efforts, our instructors are assessed in several ways. For the continuous improvement of our instruction, all students are required to provide input for each course they take each semester using the Course Evaluations Questionnaire, which can be accessed through your myLonestar account. This occurs approximately half way through your course, and you will be notified when surveys are available for completion. Instructions on how to access and complete the Course Evaluations Questionnaire are located in the Student Help Center in myLonestar. Once you evaluate your course(s), print and maintain a copy of the receipt for your records. The college deans review these evaluations each semester. Additionally, the deans and/or department chairs may visit each instructor's class at some time during the semester to observe the instructional environment being provided and complete an assessment of the instructor.

Withdrawal Policy

Withdrawal from the course after the official day of record and prior to "W" Day, (see current catalog for this date) will result in a final grade of "W" on your transcript. You are strongly encouraged to meet with your professor prior to withdrawing from a course, to consider all options prior to withdrawing. No credit will be awarded for a course earning a "W." If you stop attending class, you must withdraw at the registration office prior to "W" day. If you stop attending class and do not officially withdraw, you will receive an "F" for the course.

Six Drop Rule

Students who enrolled in Texas public institutions of higher education as first-time college students during the Fall 2007 term or later are subject to section 51.907 of the Texas Education Code, which states that an institution of higher education may not permit a student to drop (withdraw with a grade of "W") from more than six courses, including courses that a transfer student has previously dropped at other Texas public institutions of higher education that have already been counted against their six drop limit. Each student should fully understand this drop limit before you drop any course. Please see a Counselor or Advisor in our Student Services area for additional information and assistance. Dropping a transitional and/or ESOL course does not count against the six drop limit.

Additional Campus Resources

Advising Services

The Advising process is an integral part of your academic success. Academic advisors are available to assist you with a variety of academic services including, advising, referrals to campus and community resources, and planning for transfer and graduation. The Advising Services office is located in CASA 109. For more information about a specific advising service, email *lsccfadvising@lonestar.edu.*

Veteran Affairs Center Services

The Lone Star College Veterans Affairs Center provides services to all veteran students and their family members from our five colleges including LSC-CyFair, LSC-Kingwood, LSC-Montgomery, LSC-North Harris, and LSC-Tomball, five centers, LSC-University Park, LSC-University Center at Montgomery, LSC-University Center at University Park, Lone Star Corporate College, and LSC-Online. Information is available at http://www.lonestar.edu/veterans-affairs.htm

The Assessment Center

The LSC-CyFair Assessment Center provides academic testing support for your class at no charge. **No appointment necessary**. If you are enrolled in a face-to-face class, you must have approval from your instructor prior to arriving for testing as we only administer make-up exams and exams requiring testing accommodations for these types of courses. If you are enrolled in an online or hybrid class, testing may be required in the Assessment Center. Your instructor will provide more information on this

No testing will begin in the last hour prior to closing. It is the student's responsibility to arrive early enough to complete their test before the center closes. **Photo ID is required for all exams**.

Testing services are also available at the Fairbanks Center and the Cypress Center. We are open 6 days per week, including some evenings. For specific testing hours and contact information, please visit http://www.lonestar.edu/testing-cyfair.htm or call 281.290.3220.
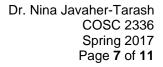
Lone Star College-CyFair is committed to your success

Your success is our primary concern! If you are experiencing challenges achieving your academic goals, please contact your advisor or instructor. Advisors can provide assistance with questions related to academics, while the Counseling office can assist with ADA accommodations and personal barriers. All concerns related to classroom instruction must first be addressed with the instructor.

Library

The Lone Star College-CyFair Library is located in the Learning Commons building and contains information resources for both college students and community members. Not only is the library an academic library, but it is also a branch of the Harris County Public Library. Librarians are available to assist with research. The Library contains over 125,000 books, online information databases, 185 computers, free wireless internet, and many more information/research related amenities to ensure student success.

For Library hours and contact information, please visit http://www.lonestar.edu/library or call 281.290.3214.

Academic Success Center (Barker Cypress Campus - Learning Commons - 2nd Floor)

The Academic Success Center offers: Tutoring: For all disciplines http://www.lonestar.edu/tutoring-cyfair.htm or 281.290.3279, The Science Center (LRNC 203), Math Center (LRNC 205) and the Writing Center (LRNC 206). Student success seminars are also offered throughout the semester.

Academic Success Center Open Labs (TECH 104 & CASA 223)

The Academic Success Center Open Labs are quiet work and study areas available to all students. Students access the labs with their LSCS ID card. The ASC Open Labs are available during extended hours during all semesters. Basic software assistance, access to Mac and PC computers loaded with courseware, printing, copying, and scanning are available in TECH 104 and CASA 223. For more information, please visit http:// www.lonestar.edu/13669.htm or contact 281.290.5980 or cfasclabs@lonestar.edu.

Counseling Services

Counseling services are available to students who are experiencing difficulty with academic issues, selection of college major, career planning, disability accommodations, or personal issues. Students may contact Counseling, Career, and Disability Services at 281.290.3260, cyfair.counseling@lonestar.edu, or stop by CASA 109 to make an appointment.

Students may contact counseling services at the Fairbanks Center or Cypress Center. The Fairbanks Center contact is 832.782.5110, Fairbanks.counselor@lonestar.edu, or FBC120. The Cypress Center contact is 832.920.5029, Lolita.B.Page@lonestar.edu, or CYC, or 100B.

Lone Star College-CyFair Campus Policies

Academic Integrity

Lone Star College-CyFair is committed to a high standard of academic integrity in the academic community. In becoming a part of the academic community, students are responsible for honesty and independent effort. Failure to uphold these standards includes, but is not limited to, the following: plagiarizing written work or projects, cheating on exams or assignments, collusion on an exam or project, and misrepresentation of credentials or prerequisites when registering for a course. Cheating includes looking at or copying from another student's exam, orally communicating or receiving answers during an exam, having another person take an exam or complete a project or assignment, using unauthorized notes, texts, or other materials for an exam, and obtaining or distributing an unauthorized copy of an exam or any part of an exam. Plagiarism means passing off as his/her own the ideas or writings of another (that is, without giving proper credit by documenting sources). Plagiarism includes submitting a paper, report, or project that someone else has prepared, in whole or in part. Collusion is inappropriately collaborating on assignments designed to be completed independently. These definitions are not exhaustive. When there is clear evidence of cheating, plagiarism, collusion, or misrepresentation, disciplinary action may include but is not limited to requiring you to retake or resubmit an exam or assignment, assigning a grade of zero or "F" for an exam or assignment; or assigning a grade of "F" for the course. Additional sanctions including being withdrawn from the course, program or expelled from school may be imposed on a student who violates the standards of academic integrity.
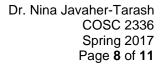
Student Behavior Expectations

Students are expected to conduct themselves appropriately while on College property or in an online environment. Students may receive disciplinary action up to and including suspension, if they violate College rules, disrupt classes, or interfere with the opportunity of others to obtain an education. Students who pose a threat to the safety of others will be subject to immediate withdrawal from the classroom, campus environment, and/or online environment, as well as face subsequent criminal charges, as appropriate. Please refer to the Student Code of Conduct located online at http://www.lonestar.edu/student-responsibilities.htm for additional information.

Americans with Disabilities Act Statement (Disability Services)

Lone Star College- CyFair is dedicated to providing the least restrictive environment for all students. We promote equity in academic access through the implementation of reasonable accommodations as required by the Rehabilitation Act of 1973, Title V, Sections 504 and 508, the Americans with Disabilities Act of 1990 (ADA), and the Americans with Disabilities Amendment Act (ADAAA). These laws enable students with disabilities to participate in and benefit from all post-secondary educational courses and activities.

A student requesting accommodations for a disability must contact the Counseling/Disability Services Office and register for services. The Assistive Technology Lab is available for students who benefit from its various technologies to convert text to speech, magnify items, convert text to Braille, etc. after their accommodations have been determined by the Counseling office. If possible, the student requesting services should make an initial contact with the office at least 4 weeks prior to the

start of the first class. Any disability related documentation and requests for assistive technology should be submitted to the Disability Services office which is located on the LSC-CyFair campus in CASA 109. You may contact Stephanie Dillon, Disability Services Counselor, at 281-290-3260 or 281-290-3533 or Stephanie.g.dillon@lonestar.edu for additional information and/or to schedule an appointment. Additional information may be accessed online at http://www.lonestar.edu/disability-services.htm

Student Absence on Religious Holy Days

The student must notify the faculty member in writing within the first 12 days of the semester of the intent to be absent due to a religious holy day. Under Texas Education Code 51.911, a student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time as established by the faculty member.

Academic Appeals

An academic appeal is a formal request by a student to change a grade or to challenge a penalty imposed for violations of standards of academic integrity such as plagiarism or cheating. Before a student brings an academic appeal, he or she should first meet with the instructor to request that a change be made. Refer to the website for more information: LoneStar.edu/academic-appeal.

Campus Safety and Security

Lone Star College is committed to maintaining the safety of the students, faculty, staff, and guests while visiting one of our campuses. To help ensure your safety during an emergency (safety, fire, severe weather, etc.), please follow the instructions of college officials. Safety information and resources may be found at http://www.lonestar.edu/oem.htm and are also posted on in each classroom. In the event you wish to report an emergency, please contact the police at 281.290.5911 or utilize the red handled emergency phones located in classrooms.

Guidelines for Children of College Students

Children of students may not enter the classroom or lab areas. See Board Policy Section II.D.2.04 for more information.

Equal Opportunity Statement

Lone Star College is committed to the principle of equal opportunity in education and employment. Lone Star College does not discriminate on the basis of race, color, gender, religion, disability, age, veteran status, sexual orientation, nationality or ethnicity in its programs and activities.
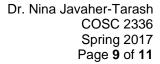
FERPA

The Family Educational Rights and Privacy Act (FERPA), also known as the Buckley Amendment, was established to protect the privacy rights of all students and applies to any educational facility receiving federal funds. We cannot release certain information to another person without an Authorization to Release Student Information Form.

Computer Virus Protection

Computer viruses are, unfortunately, a fact of life. Using removable devices on more than one computer creates the possibility of infecting computers and diskettes with a computer virus. This exposes the computers of the college, your personal computer, and any others you may be using to potentially damaging viruses. The college has aggressive anti-virus procedures in place to protect its computers, but cannot guarantee that a virus might not temporarily infect one of its machines. It is your responsibility to protect all computers under your control and use and ensure that each diskette you use, whenever or wherever you use it, has been scanned with anti-virus software. Since new viruses arise continually, your anti-virus software must be kept current. Moreover, since no anti-virus software will find every virus, keeping backup copies is extremely important.

Internet and E-mail

Lone Star College provides computing and network resources to students. You are encouraged to use the computers, software packages, and electronic mail (e-mail) for educational or College-related activities and to facilitate the efficient exchange of useful information. Instructors will correspond through the student's MyLoneStar e-mail (@mylonestar.edu) or through the LSC-Online Class e-mail (@d2l.lonestar.edu) to communicate important course-related information. This account is also used by campus personnel to share details about upcoming events and other important college information (e.g., financial aid status, announcements from the college president, etc.). Stay informed by setting up your-MyLoneStar e-mail account as soon as possible and checking your e-mail often.

The equipment, software, and network capacities provided through the district computer services are and remain the property of the College. Use of the equipment and networks is to comport with the policies and procedures of the College and access may be denied to any student who fails to comply with the College's policies and procedures regarding its use.

Access to the College's e-mail and similar electronic communications systems are a privilege and certain responsibilities accompany that privilege. All users are expected to demonstrate the same level of ethical and professional manner, as is required in face-to-face or written communications. Threatening, anonymous, or forged messages will be treated as a violation of this policy.

Software Piracy

Law strictly prohibits unauthorized copying of software purchased by Lone Star College-CyFair for use in laboratories. Lone Star College-CyFair administration will take appropriate disciplinary action against anyone violating copyright laws.

Syllabus Disclaimer

It is the instructor's right to modify the class schedule when necessary and cover course topics as he/she feels is necessary to meet the learning outcomes, therefore this syllabus is subject to change.

All assignments, quizzes, exams are usually due by Sunday of the assigned week at 11:30 PM unless otherwise is specified by instructor.

Detailed due dates for individual assignments can be found in your D2L under weekly modules

Week	Date	Objective	Ch	Items Due in D2L
1	Jan 30	"START HERE" document Syllabus Review Review of Objected Oriented Design	Instructor Supplement	Online Student Contract "Introduce Yourself" Discussion Review Of COSC 1337
2	Feb 6	Arrays, Linked Lists, and Recursion	3, Instructor Supplement	Assessment Quiz
3	Feb 13	Stacks, Queues, and Deques	5, Instructor supplement	Discussion 1 Quiz 1 Online Activity
4	Feb 20	List and Iterator ADTs	6, Instructor supplement	Discussion 2 Quiz 2 Online Activity
5	Feb 27	Trees	7	Discussion 3 Quiz 3 Online Activity
6	March 6	Exam 1 Review		Exam 1 Project/assignment 1
7	March 13	Spring Break		NO CLASS
8	March 20	Priority Queues (Heap)	8, Instructor supplement	Discussion 4 Quiz 4 Online Activity
9	March 27	Hash Tables, Map	9	Discussion 5 Quiz 5 Online Activity
10	April 3	Search Trees (Binary, AVL)	10, Instructor Supplement	Discussion 6 Quiz 6 Online Activity
11	April 10	Sorting Algorithm, Set, and Selection	11, Instructor Supplement	Project/assignment 2 Discussion 7

12	April 17	Review of Sorting and Searching algorithm	10, 11	Quiz 7 Online Activity
13	April 24	Graph Algorithms	13	Discussion 8 Quiz 8 Online Activity
14	May 1	Review final Work on Final Project		
15	May 8	Final Exam	Final Project	