Data Structures

CISC 3130, Brooklyn College

Instructor Info

- Professor Katherine Chuang
- TR 11-12pm
- Online
- http://contact.drkat.dev
- @ chuang@sci.brooklyn.cuny.edu

Course Info

- Mon & Wed, 9:05-10:45am

  Section MY9
- MS Teams

Description

Stacks and their implementations. Prefix, postfix, and infix notation. Queues and linked lists and their implementations. Binary and general trees and their implementations and traversals. Sorting and searching techniques. Graph algorithms.

Grades

16pts	Project Labs
44pts	Practice Problems
20pts	Midterms
20pts	Final Exam

100pts possible total for the course.

Course Objectives

The objective of this course is to allow students to build upon their previously mastered knowledge of programming by working with further abstractions. By the end of the course, students should be able to:

- Demonstrate understanding of the abstract properties of various data structures such as stacks, queues, lists and trees and be able to use these structures effectively in application programs.
- Implement data structures in more than one manner, compare the different implementations and explain the advantages and disadvantages.
- Demonstrate understanding of and be able to program various sorting algorithms, and be able to compare the efficiency of these algorithms in both time and space.
- Trace and code recursive functions.
- Demonstrate some understanding of object-oriented programming and be able to program with Java classes.

Readings, Materials, and Resources

Course materials are published to the OER resource page located at `libguides.brooklyn.cuny.edu/cisc3130` and also some additional items available at the MS Team listed on the left. Students should read at least one textbooks to supplement course discussion. Students would benefit the most from preparing for class by reading the suggested reading material and completing practice questions in one of the textbooks, or a workbook of problem sets. This will allow the student to identify their strengths and weaknesses by covering the material before each class meeting.

Technology Requirements: When specialized software is required, it will be freely available online. All students should have an account on a hosted version control system (VCS), such as GitHub for submitting assignments. Technologies that the instructor will teach from are: Java version 8, Git version control with Github.com, Travis-CI.com, and a plain text editor application.

Grading Scheme

Final grades are based on the breakdown listed on the left. The final letter grade will be the letters A (90-100), B (80-89), C (70-79), D (60-69), F without +/-. Missing both midterms will result in a failing grade for the course.

Homework: Instructions for each submission will be provided for each assignment. Please read carefully the required items to submit and due dates. Assignments can be turned in earlier than the due date. Late homework will not be accepted however except under conditions of special arrangements made in advance of the due date.

Exams: Two midterms will be given during the term during regularly scheduled class time, and one exam during the final exam week scheduled by the registrar. The final exam is comprehensive, covering all material covered in the course. There are no makeup exams. Missed examinations count as zero credit. Showing up late for an examination does not extend the end time of the exam. If you miss any of the two in-term exams for any reason: Your score on the missed exam is zero. Your score on the next exam will count double. Missing both quizzes and more than half the engagement will result in a failing grade.

Online Course Policies

Classroom Conduct: Please help create an environment conducive to learning for your classmates. Please avoid disruptive behavior.

Class Attendance: Synchronous sessions are held during scheduled course time with expectation of students completing asynchronous activities. Attendance of synchronous sessions will not be used directly in determination of final grades, however engagement of at least 1 point per week is required to pass the class. When you miss a class, you are expected to communicate with one of your class colleagues to obtain all the information you missed. You are responsible for dropping the course.

Class Discussions: Class sessions allow for free flowing discussions about course materials and assignments. It is the students' responsibility to prepare questions if they wish to use this time. In between class sessions students are expected to post at least 1 post or reply to the course dicussion board.

Exam Procedures: During exams, you may not refer to any other person or source. If you feel a question is unclear, describe your rationale for answering on a separate (i.e. write on a piece of paper) and email a copy of that to the instructor.

Taking Notes: Please take notes by writing or typing. Do not record or tape lectures electronically, without express written consent of all participants involved. If a student believes that he/she/they is disabled and needs to record or tape classroom activities, please contact the appropriate office to request accommodation.

Electronic Communication

Please use Discord for general discussion or questions, including clarifying questions, related to the assignments, course content, group coordination, etc.

Emails to the instructor should only be sent for individual issues such as individual grading queries. Please include CISC3130 in the subject line when sending email to chuang@sci.brooklyn.cuny.edu. It would be helpful to include the section number and your emplid when inquiring about scores.

Office hours

Office hours are available for students who need further clarification of concepts, who have made solid attempts on the homework assignments or other practice problems and require further assistance understanding how to approach such problems.

A note on self care

Please take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. Asking for support sooner rather than later is often helpful.

University Resources

WEB linux server

To obtain your linux login, email Raymond Patitucci rpatitucci@brooklyn.cuny.edu and include your 8 digit emplId and name. He will email you your linux username and password.

Office 365 or BlackBoard Assistance

Contact the ITS helpdesk at 718.951.4357 or helpdesk@brooklyn.cuny.edu

Brooklyn College Learning Center

The Learning Center assistance to students such as writing workshops and other academic help (brooklyn.cuny.edu/learning).

Brooklyn College Health Clinic

The health clinic available free to students. To connect, call 718.951.5580, email BChealthclinic@gmail.com, or their website (brooklyn.cuny.edu/healthclinic)

Personal Counseling

If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, please seek support. Personal Counseling center can be reached at 718.951.5363, email BCPersonalCounseling@gmail.com, and their website (brooklyn.cuny.edu/personalcounseling)

Consider reaching out to a friend, faculty or family member you trust for help getting connected to the support that can help.

Student Clubs

Clubs are great places to network to find out more about internship and job opportunities available. Some are listed on the department website http://www.sci.brooklyn.cuny.edu/cis

- CS Club bccompsci.club
- WiCS bcwomenincompsci.wordpress.com

University Policies

Important Dates

Wednesday, Aug. 26	First day of Fall 2020 classes
Tuesday, Sept. 1	Last day to add a course
Tuesday, Sept. 29	Conversion Day – Classes follow a Monday Schedule
Wednesday, Oct. 1	Conversion Day – Classes follow a Monday Schedule
Friday, Nov. 6	Last day to withdraw from a course with a "W" grade
Wednesday, Nov. 25	Conversion Day – Classes follow a Friday Schedule
Thursday, Dec. 10	Reading Day
Friday, Dec. 11	Reading Day
Monday, Dec. 14	Final Examinations Begin
Sunday, Dec. 20	Final Examinations End / End of Fall Semester

Academic Integrity

The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for policy implementation can be found at www.brooklyn.cuny.edu/bc/policies. If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member MUST report the violation."

Disabilities

In order to receive disability-related academic accommodations students must first be registered with the Center for Student Disability Services. Students who have a documented disability or suspect they may have a disability are invited to set up an appointment with the Director of the Center for Student Disability Services, Ms. Valerie Stewart-Lovell at (718) 951-5538. If you have already registered with the Center for Student Disability Services, please provide your professor with the course accommodation form, relevant documentation, and discuss your specific accommodation.

Student Bereavement Policy

Students who experience the death of a loved one must contact the Division of Student Affairs, 2113 Boylan Hall, if they wish to implement either the Standard Bereavement Procedure or the Leave of Absence Bereavement Procedure (see below). The Division of Student Affairs has the right to request a document that verifies the death (e.g., a funeral program or death notice).

Typically, this death involves that of a family member, in parallel to the bereavement policy for faculty and staff. However, it is up to the discretion of the Division of Student Affairs to determine if a death outside of the immediate family warrants implementation of the student bereavement policy.

http://www.brooklyn.cuny.edu/web/about/initiatives/policies/bereavement.php

Religious Observances

State law regarding non-attendance because of religious beliefs (p. 66 in the Undergraduate Bulletin or p. 40 of the Graduate Bulletin).