



CS 2050 - Computer Science II (Spring 2020)

Contact Information

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- Office Hours: Tuesday 2-3:50pm and Wednesday 4-5:50pm
- Google Calendar Schedule: [link](#)

Course Description

This course, a continuation of CS 1050 (Computer Science I), further emphasizes the concepts of the software development cycle and introduces the concept of an abstract data type (ADT). The topics covered include linked-lists, trees, stacks, queues, classes, recursion, and a variety of data representation methods. Further topics in software engineering and programming style as well as algorithms for sorting and searching are included.

Prerequisites

CS 1050 (Computer Science I) and MTH 1110 (College Algebra), all with a grade of "C" or better, or permission of instructor.

Required Materials

- Eck, D., Introduction to Programming Using Java. 8th Edition. Available at Open Textbook Library: <https://open.umn.edu/opentextbooks/textbooks/introduction-to-programming-using-java-seventh-edition>.
- Morin, P. Open Data Structures (in Java). 0.1G Edition. Available online at: <http://opendatastructures.org/ods-java.pdf>.

Supplementary material, including this syllabus, the class schedule, slides, papers to read, and assignment instructions will be made available through the course's website located at <https://sites.google.com/view/thyagomota>. You should also use Blackboard (<https://metrostate-bb.blackboard.com>) to submit your work and check your grades. Expect to be asked to configure development tools throughout this course. Link to tutorials will be provided to you.

Course Learning Objectives or Outcomes

Upon completion of this course the student should be able to:

1. Describe the concepts associated with an Abstract Data Type (ADT) and create appropriate ADT's for specific applications.
2. Implement an ADT as a class.
3. Implement a linked list in a variety of ways including singly linked, doubly linked, circular, dummy head node.
4. Describe and contrast the various ways to implement a linked list.
5. Describe lists, stacks, queues, and trees as ADTs.
6. Implement a lists, stacks, and queues using an array or a linked list.
7. Implement trees.
8. Describe various common applications of trees.
9. Write recursive procedures to perform preorder, inorder, and postorder tree traversals.
10. Determine the order of a simple algorithm.
11. Describe and implement various sorting algorithms, and be able to identify the order of complexity of their algorithms.
12. Describe and implement various searching algorithms, and be able to identify the order of complexity of their algorithms.
13. Identify and describe the elements of the software development cycle.
14. Write program documentation that includes appropriate preconditions and postconditions.

Course Grading Policy

Homework (20%)

These are relatively short assignments designed to give you an opportunity to practice the topics discussed in class in more detail. You should be able to complete these assignments in less than an hour. Expect to have homework assigned once a week (on average). Homework is to be completed by yourself (they are not group work). Homework grades will use a 0-3 simplified scale.

Programming Assignments (40%)

At least four programming assignments will be given during the semester. These assignments may involve using a new programming language, exploring its specific features and capabilities, or learning how to develop a simple programming language parser to illustrate implementation aspects of a programming language. Because programming assignments will require more time and planning, you will be given at least two weeks to complete your work.

Each programming assignment will be graded out of 100 points. A detailed grading rubric will be provided for each assignment. We encourage you to work with a classmate on these assignments type but no more than two students in a team (no exceptions). The allowed collaboration in programming assignments should be restricted to within the members of each team.

Midterm Exam (15%)

The midterm exam is scheduled to TBD. You may only reschedule a test for college-approved absences or documented illness. In either case, you must contact your instructor before the beginning of the exam.

Final Exam (20%)

The final exam will be cumulative and will be given on TBD.

Participation (5%)

Attendance in class and active participation during class activities.

Late Work Policy

I will not accept submissions after an assignment deadline, unless because of illness, family trauma, or a documented excuse (e.g., participation in a competition). In all cases you are required to contact your instructor prior to the deadline.

Grading Scale

Final grades will be calculated on the standard scale using pluses and minuses. I only accept complaints about grades within 48 hours after grades are posted on Blackboard. You will receive a notification by email. It is your responsibility to check your grades right away and contact me in case there are any issues.

Important Dates

January 21: Classes begin

January 27: Self add deadline (last day to register for full-term classes without department permission)

January 28: Last day to drop full-term courses with 100% refund

February 6: Census day

February 6: Last day to drop full-term courses with a 50% refund and have classes deleted from your record

March 11: Midterm Exam

March 21-29: Spring Break (Campus Open, No Classes)

April 3: Last day to withdraw from full-semester classes and receive a 'W'

May 9: Last day of classes

May 11-16: Finals week

May 15: Commencement – College of Letters, Arts and Sciences and the School of Education – 9:30 a.m

May 17: Commencement – College of Business and College of Professional Studies – 2:30 p.m.

May 21: Grades due from faculty by noon

May 22: Grades available online in Student Hub

College of Letters, Arts, and Sciences Syllabus Statements

Students are responsible for full knowledge of the provisions and regulations pertaining to all aspects of their attendance at MSU Denver, and should familiarize themselves with the policies found in the MSU Denver Catalog. For more information and most recent updates from these sources, click on the links provided below.

Withdrawal from a Course

The Withdrawal (W) notation is assigned when a student officially withdraws from a course via the Student Hub after the drop deadline (census date) and before the withdrawal deadline posted in the Academic Calendar. Deadlines differ proportionally for courses offered during part of a semester, including late-start and weekend courses. Students should refer to the Student Detail Schedule via the Student Hub to review drop and withdrawal deadlines for individual courses. Students who withdraw from a course are responsible for the full tuition and fees for that course. After the withdrawal deadline, students may not withdraw from a course and will be assigned the grade earned based on the course syllabus. A student-initiated withdrawal will appear as an "F" on the student's academic record in any case of academic misconduct resulting in a permanent "F". For more information see "Grades and Notations" in the "Academic Policies and Procedures" section of the current Catalog, as well as the Financial Aid/Withdrawals page.

Administrative Withdrawal

The Administrative Withdrawal (AW) notation is assigned when a student, or representative, requests to be withdrawn from a course due to unforeseen or extenuating circumstances beyond the student's control. When the "AW" notation is assigned, no academic credit is awarded. The course remains on the student's academic record with an "AW" notation and counts toward the student's attempted hours. The course is not calculated in the student's GPA or quality points. Students may request an administrative withdrawal

from the Office of the Registrar after the drop deadline (census date) posted in the Academic Calendar. Deadlines differ proportionally for courses offered during part of a semester, including late-start and weekend courses. Students should refer to the Student Detail Schedule via the Student Hub to review drop deadlines for individual courses. For more information see “AW-Administrative Withdrawal” in the current Catalog under “Grades and Notations.”

Incomplete Policy

The Incomplete (I) notation may be assigned when a student who is achieving satisfactory progress in a course and who has completed most class assignments is unable to take the final examination and/or does not complete all class assignments due to unusual circumstances, such as hospitalization or disability. Incomplete work denoted by the Incomplete “I” notation must be completed within one calendar year or earlier, at the discretion of the faculty member. If the incomplete work is not completed within one year, the “I” notation will convert to an “F.” Students must have completed at least 75% of the course work to qualify for consideration for an incomplete. The student must be passing the course in order to be granted an incomplete. The course counts toward the student’s attempted hours, does not count toward earned hours, and is not calculated in the GPA or quality points. Determination of eligibility does not guarantee that an incomplete will be granted. Students who meet the qualifications may request an incomplete from the faculty member who is teaching the course. The decision to grant an incomplete is up to the faculty member or at the department chair’s discretion. . . . If an incomplete is granted, the student and instructor should fill out and sign an Incomplete Agreement form to clarify what the student needs to do to complete the course. For further information, see the “I – Incomplete” section in the current Catalog under “Grades and Notations.”

Best Grade Stands

A student’s grades for repeated courses will be removed from GPA calculations up to 18 semester hours, regardless of the original grade earned. If a student repeats more than 18 credit hours, the student may designate which of the course grades are removed from GPA calculations (up to 18 semester hours). Only the best grade and its associated credit will be calculated in the GPA and earned hours totals. Other attempts for the course will appear on the official academic record but will be annotated to indicate they do not count for academic credit or GPA calculation. This policy applies only to courses taken at MSU Denver, and it does not apply to courses designated as repeatable toward degree requirements. For more information, see “Best Grade Stands” in the current Catalog.

Academic Integrity

As students, faculty, staff and administrators of Metropolitan State University of Denver, it is our responsibility to uphold and maintain an academic environment that furthers scholarly inquiry, creative activity and the application of knowledge. We will not tolerate academic dishonesty. We will demonstrate honesty and integrity in all activities related to our learning and scholarship. We will not plagiarize, fabricate information or data, cheat on tests or exams, stealing academic material, or submit work to more

than one class without full disclosure. For further information see “Academic Integrity” and “Academic Dishonesty” on the Dean of Students website.

Sexual Misconduct

See the MSU Denver website for information regarding the Sexual Misconduct Policy and Title IX. For more information, refer to the Student Code of Conduct page.

Access Center - Accommodating Students with Disabilities

The Metropolitan State University of Denver is committed to providing an accessible and inclusive learning environment for all students, including those with disabilities. Students with a diagnosed condition/disability which may impact their access, performance, attendance, or grades in this class should contact the Access Center, located in the Plaza Building, Suite 122, 303-615-0200. The Access Center is the designated department responsible for coordinating accommodations and services for students with disabilities. Students will need to provide an Accessibility Notification Letter obtained from the Access Center to their faculty to activate their accommodations. Information pertaining to a student's disability is treated in a confidential manner. This “Required ADA Syllabus Statement” along with additional information are available on the Access Center website.

Class Attendance

Attendance during the first week of class is required. It contributes greatly to teaching and learning. Some departments determine a student's enrollment in a course based upon attendance during the first week of class. Consult the department for more information about the attendance policy for the class that you are attending. Students who drop classes are financially responsible for those classes in accordance with withdrawal/refund policies. Students at MSU Denver who, because of their sincerely held religious beliefs, are unable to attend classes, take examinations, participate in graded activities or submit graded assignments on particular days shall, without penalty, be excused from such classes and be given a meaningful opportunity to make up such examinations and graded activities or assignments provided that proper notice and procedures are followed. For further information, see the Class Attendance policies page.

Electronic Communication Policy

Use of MSU Denver email services should follow standards of normal academic and professional ethics, and is governed by University policies and applicable law. Inappropriate use may result in revocation of access to University computing systems, and could result in disciplinary action pursuant to the Student Handbook, Faculty Handbook, and Staff Handbook. For more information, see the Electronic Communication policy page.

Resources

The College of Letters, Arts, and Sciences is committed to, and cares about, all students. To help you manage personal challenges and basic needs security, the university offers several resources. Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Dean of Students (303-615-0220), the Gender Institute for Teaching and Advocacy (303-615-2052), or our CLAS office (303-615-0600) for support.

Campus-Wide Emergency Preparedness

In the event the Auraria campus experiences inclement weather, a natural disaster, or any type of campus emergency, it is the responsibility of each student to understand any evacuation and/or “lockdown” guidelines if an emergency is declared. More information can be found at the Emergency Preparedness webpage: <https://msudenver.edu/facilities/emergencypreparedness/>.

Please use the following to familiarize yourself with these guidelines:

- Please familiarize yourself with evacuation procedures and Quick Reference Sheet located in each classroom as well as at this website:
<https://www.ahec.edu/for-campus-faculty-staff/emergency-preparedness/emergency-procedures/>
- MSU Denver will communicate an emergency event through RAVE notifications (text, email, voicemail). Please visit the RAVE webpage to register, review, and/or update your information:
<https://www.getrave.com/login/MSUDenver>
- If you need to report an emergency, you can:
 - dial 911 from a campus phone
 - dial 303-556-5000 from a cell phone
 - text-a-tip to 720-593-8477
- Attend campus-wide trainings and/or consult with your instructor if you have any other questions about what to do in an emergency.

NOTE: If you have any difficulty accessing the links in this document, please inform the instructor.