

Midwestern State University
Department of Computer Science
Spring 2020

Course Information

Course syllabus: Data Structures and ADT.

Course number: CMPS 1063.

Course Section: 202.

Class hours: 9:00 am to 9:50 am, Monday, Wednesday and Fridays.

Class room: Bolin 304.

Instructor Information

Instructor's Name: Doctor Eduardo Colmenares.

Instructor's office: Bolin Hall, office 126C.

Instructor's email: eduardo.colmenares@msutexas.edu

Course Description

A continuation of the development of a disciplined approach to the design, coding, debugging, and testing of programs. Introduction to data structures, abstract data types (ADT), recursion, and algorithm analysis using a high level language.

Textbook

Is the textbook required? The answer is yes.

Textbook name: Starting Out with C++, Early Objects.

Textbook edition: Eight edition.

Textbook Author: Gaddis, Walters and Muganda.

Required Software

Visual Studio, the most recent version. Please remember that visual studio is available to MSU students free of charge.

Evaluation Process

The final grade for this course will be based on participation, projects and exams. A description is provided below:

- You will have two tests and one final exam, each one of these tests are worth 20 percent. All your tests will count for sixty percent of final your grade.
- You will have several programming assignments. All your programming assignments will count for twenty five percent of final your grade.
- The next category is attendance. Attendance will count for five percent of your final grade.
- The last category is participation, and this will count for ten percent of your final grade. Please be aware that this category includes in class activities and quizzes. Below you will find additional information about this category.
 - Assignments given in class, also known as in class activities will be unannounced in nature.
 - Quizzes will be non-pop-up quizzes.
 - No makeup participation assignments are given.

- Arriving late, leaving early to class voids the right to take a quiz or in class activity if it already started or it is about to start.

Evaluation Process Summary Table

Category	Percentage
Test 1	20%
Test 2	20%
Final Exam	20%
Homework	25%
Attendance	5%
Participation (Quizzes)	10%

Grading Policy

89 to 100 points is an A.

79 to 88.99 points is a B.

69 to 78.99 points is a C.

59 to 68.99 points is a D.

0 to 58.99 points is an F.

Attendance

Attendance is a component of the course grade (five percent). Each student will have one unexcused absence. Each student will begin with 100 points for their attendance grade. For each additional unexcused absence, 25 points will be subtracted from the attendance grade. Please let your instructor know if you are going to miss a class for academically related extracurricular activities. If this is the case you must present the sponsoring university member's written justification before your absence occurs. At the beginning of class your professor will go over the class roster, if you are not in the classroom when your name is called you will receive an absence. The Attendance grade is 100% under your control.

Tests

Tests are comprehensive in nature. No make-up exams will be given, except for the following cases:

1. Surgery, Medical Emergency, Death in the family, Presentation at a Conference, some others as determined by the instructor.
 - a. If you miss an exam, you will receive a permanent zero unless you notify the instructor and demonstrate with the proper official documentation that an emergency that you could not circumvent existed. This documentation must be presented not later than 24 hours after the test.
 - b. Students who miss an exam due to University business should notify the instructor in advance, and present the sponsoring university member's written justification.

If you do miss an exam and you fall in one of the categories above, this means that you have a properly documented case. Your instructor will proceed to assign a temporary grade of zero which will be substituted for your excused test grade (Final Exam). However, this substitution can only be performed once during the semester. Exams are uniquely composed for each term.

Final Exam

There is no make-up final exam. The final exam will take place in our regular classroom. It is the student's responsibility to keep track of the designated date, time. A complete list of all MSU exams (by time) can be found at [Final Exam Schedule](#). Final exam date is Monday May 11, 2020, from 8:00 am to 10:00 am, in our regular classroom.

Late Policy & Deadlines

- Submitted work is due when specified, as specified (format) by the instructor. It is in the student's best interest to keep track of all deadlines.
- The instructor is not required to remind students of ANY date and/or deadline associated with tests, homework, reports, project assignment, etc.
- Assignments submitted to the instructor's email will be considered invalid, even if submitted before the deadline. Assignments MUST be submitted to the corresponding dropbox via D2L
- Late assignments will be accepted only for the first 48 hours right after the initial deadline has expired at a penalty of 25 points. After the first 48 hours, no assignment will be accepted.
- Very Important: Before you submit any file, take your time and double OR triple check that
 - a. You are uploading the correct and ALL necessary files
 - b. Your work is correct at the best of your abilities
 - c. Failure to fulfill (a) and (b) ON TIME, WILL NOT excuse you from a bad grade.

Additional Grade Policy

Once the grades, have been either returned to the students, or published via D2L, the student will have one week to examine them and check for inconsistencies, errors, etc. After the one week window of opportunity all grades will become PERMANENT and WILL NOT change. It is not only the student's responsibility to check the accuracy of his/her grades, but also in his/her best interest to do it.

This rule DOES NOT apply to the final exam because the final is exam triple checked by the instructor before publishing the grade.

Important Information about our grading policy

The instructor reserves the right to adjust the grade distributions for the whole class. What does it mean? It means that grade distributions will not be adjusted on an individual basis.

Departmental Cheating Policy and Ethical Conduct

Policy on Academic Honesty

The Department of Computer Science had adopted the following policy related to cheating (academic misconduct). The policy will be applied to all instances of cheating on assignments and exams as determined by the instructor of the course.

- 1st instance of cheating in a course: The student will be assigned a non-replaceable grade of zero for the assignment, project or exam. In addition, the student will receive a one letter grade reduction in course.
- 2nd instance of cheating in a course: The student will receive a grade of F in course & immediately be removed from course.
- All instances of cheating will be reported to the Department Chair and, in the case of graduate students, to the Department Graduate Coordinator.

Policy on Testing Process

The Department of Computer Science has adopted the following policy related to testing.

1. All bags, purses, electronics (turned off), books, etc. will be placed in the front of the room during exams, or in an area designated by the instructor.
2. Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.
3. No student is allowed to leave the room during an exam and return. Be prepared to remain in the classroom for the entire duration of the test.

Classroom Civility

All violations of classroom civility will be reported to the Dean of Students.

Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to ensure that all students gain from time spent in class, students are prohibited from engaging in any form of distraction, e.g. leaving the room for extended periods of time, reading newspapers (or other articles), working on other courses, and using cell-phones or laptops for calls or messages. If you indulge in any such inappropriate behavior (without explicit consent of the instructor), you will (at the very least) be asked to leave the classroom. [MSU Dean of Students Website](#).

Student with Disabilities

Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from disability support office during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Disability Support Office has been provided. For additional information you may contact the Disability Support Office in Clark Student Center 168 - Phone: (940) 397-4140.

[Disability Support Services](#).

Dean of Students

The Dean of Students can assist in notifying the campus community of student illnesses, immediate family deaths and/or student death. Generally, in cases of student illness or immediate family deaths, the notification to the appropriate campus community members occur when a student is absent from class for four consecutive days with appropriate verification. It is the student's responsibility for missed class assignments and/or course work during their absence. [MSU Dean of Students Website](#).

University's Campus Carry

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at [Campus Carry](#).

Research and Creative Activity Opportunities at MSU

Enhancing Undergraduate Research Endeavors and Creative Activities (EURECA) is a program that provides opportunities for undergraduates to engage in high-quality research and creative activities with faculty. EURECA provides incentives and funding through a system that supports faculty and students engaged in collaborative research and creative works. For more information contact the Office of Undergraduate Research at (940) 397-6274 or by email at

eureca@mwsu.edu or better yet, stop by the UGR office located in the atrium of the Clark Student Center, room 161. Information and resources are also available at [Eureca's website](#)

Undergraduate Research Opportunities and Summer Workshop (UGROW)

Like EURECA, UGROW provides opportunities for students to conduct research with faculty. However, the research occurs in the summer. For five weeks UGROW students experience the authenticity of scientific research as well as research and creative activities in art, music, theater education, business, health and social sciences, English, history, etc. in a highly interdisciplinary environment. Students work on projects of their choice and present their findings at the end of program and the MSU Undergraduate Research and Creative Activity Forum. Faculty members will introduce their research ideas February 13th, 2019, at 5:00 p.m., Comanche Suites, Clark Student Center. A break-out session with individual faculty members will follow. If you have any questions, contact the Office of Undergraduate Research at (940) 397-6274 or by email at eureca@mwsu.edu. More information and resources are available at [ugrow's website](#)

Council on Undergraduate Research

To support undergraduate research and creative activities, Midwestern State University holds an enhanced institutional membership with the Council on Undergraduate Research (CUR). This institutional membership includes unlimited memberships for any interested faculty, staff, and students. Students find information on benefits and resources at [the council for undergraduate research website](#) and sign up at no cost at [this website](#).

I would like to personally invite you to become a member of CUR so that you benefit from all the opportunities CUR offers to you.

CUR Undergraduate Resources Webpage contains:

- Research Opportunities;
- Presentation Opportunities;
- Undergraduate Research Journals;
- CUR-Sponsored Student Events;
- The Registry of Undergraduate Researchers;
- And more!

ScholarBridge

Midwestern State University is excited to announce a new resource designed to address a commonly expressed student need—the creation of a centralized searchable database of faculty research interests and opportunities. We have entered into a partnership with [ScholarBridge](#), is a website designed to help students participate in undergraduate research and creative activities. I strongly encourage you to join ScholarBridge at your earliest convenience.

Tentative Agenda

1. Review from 1044
 - a. Functions
 - b. 1D-2D Array
 - c. Assignment # 1
2. Abstract Data Types
 - a. Classes and Objects (Light Treatment)
 - i. Member Functions
 - ii. Constructors/Destructors
 - iii. Member Function Overloading
 - b. Composite Data Structures
 - i. Structures
 - ii. Arrays of Objects / Structures
 - iii. Objects / Structures with Array data members
 - c. Objects / Structures as Function return types
3. Strings
 - a. Assignment # 2
4. Searching, Sorting, and Algorithm Analysis
 - a. Array Search and Sort
 - b. Introduction to Algorithm Analysis and $O(n)$
 - c. Growth Functions
 - d. $O(n^2)$ Sorts
 - e. Assignment # 3
5. Pointers
 - a. Pass by Reference
 - b. Dynamic Memory Allocation (incl. 1D and 2D arrays)
 - c. Assignment # 4
6. Recursion
 - a. Inductive Reasoning
 - b. Divide and Conquer
 - c. Recursion vs. Iteration
 - d. Recursion Implementation
7. Linked Lists
 - a. Linked List Operations
 - b. Single, double, circular lists
8. Stacks & Queues
 - a. Array based
 - b. Pointer based
 - c. Assignment # 5
 - i. Assignment # 5 may be replaced with a 50 minutes in the lab programming assignment that will require the student to show and exercise all the knowledge compiled during the semester. This means that you will have only 50 minutes to solve a problem.