

## SYLLABUS

### CMPS 5383 – Advanced Object Oriented Programming

#### Course Description

This course covers the fundamental concepts of object-oriented programming (OOP), with an emphasis on applying these principles to the design and development of larger, well-structured, and maintainable software systems. Topics include classes and objects, inheritance, polymorphism, and encapsulation. Students learn how these concepts work together to organize complex programs into reusable, modular, and scalable components. The course may explore multiple object-oriented programming languages and introduces UML class diagrams for modeling, designing, and visualizing the structure and relationships within object-oriented systems, along with common object-oriented design patterns.

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|---------------------|------------------------------------------------------|
| <b>Instructor</b>   | Dr. Mahmoud Eldefrawy                                |
| <b>Office</b>       | Bolin 124C                                           |
| <b>Phone</b>        | 940-397-2809                                         |
| <b>E-Mail</b>       | mahmoud.eldefrawy@msutexas.edu                       |
| <b>Lectures</b>     | Bollin 324; TR 3:30 pm – 4:50 pm                     |
| <b>Office Hours</b> | MW 1:15 pm – 2:40 pm, TR 2:15 pm – 3:20 pm & by Appt |

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#### Course Website

D2L - All important class documentation, assignments, news items, and your gradebook will be posted here.

#### Textbook and Materials

- Starting Out with C++ Early Objects, 10th Edition, Gaddis, Walters, Muganda, Pearson © 2020

#### General Topics

- Introduction to Programming Paradigms
- Classes and Objects
- Encapsulation
- Inheritance
- Polymorphism
- Method Overloading and Overriding
- UML
- Design Patterns such as Singleton, and Adapter patterns.
- Exception / Error Handling
- File I/O and Serialization
- Concurrency / Threading
- Networking
- Unit Testing
- Case Studies / Projects – applying OOP design principle to develop a large scale projects.

### Instructional Methods and Techniques:

Lectures and all supplementary materials will be posted online and made available through D2L. Students are expected to review the lecture content, readings, and discussions. Some programming assignments and activities will require the use of a laptop or personal computer; students are responsible for ensuring they have reliable access to appropriate technology and for backing up their work regularly.

### Exams and Assignments

There will be two exams cover material from the lectures and any supplementary material. Projects are expected to be working, complete, has a good programming style. A report will also be expected for each project. *All programs must be turned in to pass the course – see program grading policy in D2L.*

### Course Evaluation

|                                        |       |
|----------------------------------------|-------|
| Assignments/Programming Projects       | = 45% |
| Two exams and quizzes                  | = 35% |
| Final Project, report and presentation | = 20% |

Grades may be determined according to this scale (approximate):

|   |            |   |           |
|---|------------|---|-----------|
| A | 90% - 100% | C | 70% - 79% |
| B | 80% - 89%  | D | 55% - 69% |

### Course and Department Policies

#### Attendance Policy

Student attendance is not calculated into the grade.

#### Behavior in the classroom

Students are to assist in maintaining a classroom environment that is conducive to learning. This means that the presence of electronic devices other than your calculator are not to be seen, heard, or implied, ever. Questions are encouraged and discussion is acceptable, provided it is pertinent and does not distract from the lesson.

**Make Up Work/Exams/Quizzes:** Students need a valid university excuse (e.g., excuse from the doctor, death in the immediate family, etc.) to make up work or tests.

- For planned *excused* absences: Exam/Quiz may be taken early by prior arrangement.
- For unplanned *excused* absences: Student must make up a missed exam within 4 working days. All other missed exams will receive a zero.

## Late Work

Late programs will be accepted up to 5 days late with a 10 point deduction per day. ***No late programs for last programming assignment.***

**Computer Requirements:** Taking this class requires you to have access to a computer (with Internet access) to access online course material. ***Personal computer technical difficulties will not be considered a reason for extra time to submit assignments, tests, or online discussion postings.*** Computers are available on campus in various areas of the buildings, as well as the in the library. Contact your instructor immediately upon having computer trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The university cannot work directly on student computers due to both liability and resource limitations, however they are able to help you get connected to our online services. For help, log into [D2L](#).

## Policy on Testing Process

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

- 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.
- Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.
- A student who leaves the room during an exam must turn in the test and will not be allowed to return.

## Policy on Programs

- Tests *will* have questions covering out-of-class assignments. Know the material!
- Students will be invited to orally answer questions regarding their assignments in my office and failure to answer those questions correctly will result in deductions from their grades. (Every student can expect to be invited 1-2 times during the semester to answer questions.)

## Computer Science Tutoring

Tutoring is available in the ***Office of Tutoring and Academic Support Programs (TASP)*** in Moffett Library. A tutor may assist with programs and homework for computer science classes. The tutor will not do your work.

## Academic Misconduct Policy & Procedures

Academic misconduct is cheating, collusion, and plagiarism: it is the act of using either published or unpublished source material of other students, persons, or generative AI (unless there are instructions that allow it), and must follow accepted techniques of crediting. The Department of Computer Science has adopted the following policy related to academic misconduct. The policy will be applied to all submission of work for credit as determined by the instructor of the course, e.g., assignments, quizzes and exams. (See below for link to MSU definitions.)

- *1st instance* of cheating in the program: The student will be assigned a non-replaceable grade of zero for the assignment, project or exam. If the final grade in the course, does not result in a one letter grade reduction, the student will receive a one letter grade reduction in course.
- *Further instances* of cheating in any course within the program: The student will receive a grade of F in the course & be removed from the course.
- All instances of cheating will be reported to the Department Chair, the MCOSME Dean, the Dean of Graduate Students, if a graduate student, and the Office of Rights and Responsibilities, who may decide at their own discretion to impose a stiffer sanction based on knowledge of other instances of cheating at MSU Texas.

***Note: Letting a student look at your work is collusion and is academic misconduct!***

See Also: [MSU Student Handbook](#): Appendix E: Academic Misconduct Policy & Procedures

[https://msutexas.edu/student-life/\\_assets/files/handbook.pdf](https://msutexas.edu/student-life/_assets/files/handbook.pdf).

## **Recording of Class Lectures**

Permission must be requested in writing and obtained from the instructor before recording of class lectures. If permission is granted, the recording may only be used by the student making the recording. Recordings (or any class materials) may NOT be posted on any internet source without written permission of the instructor. Failure to adhere to the policy may result in removal from the course with a grade of F or other appropriate punishment.

## **University Policies and Procedures**

### **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. 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 has been provided. For additional information, contact the Disability Support Office in Clark Student Center 168 - Phone: (940) 397-4140

### **Policy on Concealed Handguns on Campus**

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry *concealed* handguns on campus, effective August 1, 2016. Please note, open carry of handguns, whether licensed or not, and the carrying of all other firearms, whether open or concealed, are prohibited on campus. 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 [MSU Campus Carry Policy](https://msutexas.edu/campus-carry/rules-policies) <https://msutexas.edu/campus-carry/rules-policies>. If you have questions or concerns, please contact MSU Chief of Police Steven Callarman at [Steven.callarman@msutexas.edu](mailto:Steven.callarman@msutexas.edu).

### **Policy on Smoking/Tobacco**

Midwestern State University seeks to provide a safe, healthy, pleasant environment for its faculty, staff, and students. To this end, the use of tobacco products, including smoke and smokeless tobacco, and the advertising, sale, free distribution, and discarding of tobacco products shall be prohibited in all indoor and outdoor facilities and in all university vehicles. The policy extends to faculty, staff, students, vendors, guests, and visitors.

### **Midterm Progress Report**

In order to help students keep track of their progress toward course objectives, the instructor for this class will provide a Midterm Progress Report for all students in the course through each student's MSU Portal account. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand at the midpoint of the semester. Students earning below a C at the midway point should a) schedule a meeting with the professor and b) Seek out tutoring.

### **Opt-out for Digital Course Materials**

Required digital materials for this course are part of the Courseware Access and Affordability Program at MSU Texas. Students are charged for required course materials on their student account with the Business Office. Any students who wish to opt-out of the Program and purchase the required course materials on their own must do so prior to 1/26/24. Opt-out instructions are sent to students' official my.msutexas.edu email address after the first day of class. Please contact the MSU Bookstore if you have any questions about the opt-out process.

### **Important Dates**

Visite [MSU's Registrars](https://msutexas.edu/registrar/) website Important Dates <https://msutexas.edu/registrar/>