SYLLABUS
CMPS 2143: Object Oriented Programming

Course Description:
Introduction to object-oriented programming techniques including but not limited to classes, objects, inheritance, polymorphism, and overloading. Various object-oriented languages will be considered.

Instructor:	Dr. Catherine Stringfellow
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OfficeHours:	MW 2-3pm, T R 9:30-10:30am, 2-3pm & by appt

Prerequisites: Minimum grade of C in CMPS 1063: Data Structures & ADTs

Required Textbook and Materials:
- **Object-Oriented Programming,** D. Kirk, Packt Publishing, ISBN 978-1-80461-390-0.
- **USB Flash drives**

Recommended Textbooks:
- UML Distilled, Martin Fowler, available for checkout
- Your C++ textbook from CMPS1063 (online sources acceptable)

General Objectives

- Students will learn the concepts of object-oriented programming (OOP) including abstraction, modularity and encapsulation mechanisms
- Students will examine abstract data types both from a software engineering and representational perspective and be able to develop advanced constructs, such as abstract base classes, static members, etc.
- Students will explore other concepts including polymorphism, operator overloading, and message passing viz. generic functions, late versus early binding times, as well as inheritance mechanisms.
- Students will learn object-oriented design techniques as well as OOP paradigm and be able to apply classic OOP design patterns and frameworks to solve problems.

General Topics:
- OOP Language Necessities
- Indirect Addressing
- Constructors, Destructors, Member Functions and Qualifiers
- Inheritance and Hierarchies
- Polymorphism and Dynamic Binding
- Abstract Classes
- Multiple Inheritance
- Association, Aggregation and Composition
- Exception Handling
- Friends and Operator Overloading
- Templates
- Standard Template Library
- Design Patterns

Instructional Method: Primarily lecture. Students and instructor will share their experience of coding programs in OOP languages. *The instructor may group students in pairs for the different programming assignments.* Class participation is highly recommended.

Course Assignments and Evaluation:
Students will be required to write four or five moderately complex programs. There might be a few very small programming assignments that will aid you in the larger assignments. These programs will involve applying some of the general concepts learned in class. Good documentation is expected! A few homework and writing assignments will also be required.

Final grades will be based on the following criteria.

Activity	percentage of grade
Homework, quizzes, and participation	20%
Programming assignments	45%
TWO Exams	20%
Final	15%

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

A	90% - 100%	B	80% - 89%
C	70% - 79%	D	60% - 69%

Course and Department Policies

Attendance Policy: Although student attendance is not calculated into the grade, attendance will be taken each day to track students. If a student is absent more than 2 classes without an excuse and is not performing well in class, a report will be submitted to the Dean of Students and the student may be dropped from the class. Classes will not be streamed for absent students, whether it is excused or not.

in the classroom: Students are expected 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.

Late Work: Policy for Programming Assignment is available in D2L.

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. If you know ahead of time that you will miss a quiz or exam, please arrange to take it early.

Computer Requirements: Taking this class requires you to have access to a computer (with Internet access) to complete and upload your assignments. It is your responsibility to have (or have access to) a working computer in this class. ***Personal computer technical difficulties will not be considered a reason for extra time to submit assignments, tests, or online discussion postings.*** Online class material can be accessed from any computer in the world which is connected to the internet. Computers are available on campus in various areas of the buildings, as well as the Academic Success Center. 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 ***Bolin Room 119 & 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
Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). The Department of Computer Science has 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. (See below for link to MSU definitions.)

- 1st instance of cheating in a course: 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.*
- 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.

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.

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 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, 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. 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 or *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.

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 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.

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.

Important Dates

Visit MSU's Registrars website for https://msutexas.edu/registrar/_assets/files/pdfs/fall23front.pdf or *https://msutexas.edu/registrar/_assets/files/pdfs/fall23front.pdf* for important dates.

FALL 2019

CS2143-TENTATIVE ACADEMIC CALENDAR

WEEK	MONDAY	WEDNESDAY	FRIDAY	ASSGS
1	Course info	Intro to OOP	Abstraction	HW1: email Install Java sdk
2	Java Class Example (on Y:/drive in labs)	OOD	UML	Assg1: Simple review
3	Advanced Classes and Methods	Instances and Initialization	Constructors and Destructors	**Assg1 due** Assg2: Objects
4	cont.	Stream Classes	Package/Library	
5	Review Assg2	**REVIEW**	**TEST 1**	
6	Inheritance Substitution	Abstract classes	Interfaces	**Assg2 due /** Assg3
7	Go over Assg 3	Subclasses and Subtypes	Static/Dynamic Typing	
8	Copy, Clone, Equality Polymorphism	cont**.**	Multiple Inheritance	
9	Overloading	cont.	In class Activity	**Assg 3 due** Assg 4
10	Reuse Mechanisms	**REVIEW**	**TEST 2**	
11	Overriding	cont.	Polymorphic Variables	
12	cont**.**	Generics	cont.	**Assg 4 due**
13	Exceptions	**Case Study**	Containers STL Example(s)	**Assg 5**
14	Object Interconnections Friends	**No class Thanksgiving**	**No class Thanksgiving**	
15	cont.	Design Patterns	REVIEW	**Assg 5 due**
16	**FINAL EXAM** **Monday, Dec. 9** **10:30am-12:30pm**			