

Midwestern State University
Department of Computer Science
Summer I - 2021

Course Information

Course syllabus: Numerical Analysis

Course number: CMPS 5323

Course Section: 201.

Class hours: 8:00 am to 10:00 am, Monday, Tuesday, Wednesdays, Thursday

Classroom: Bolin 320.

Instructor Information

Instructor's Name: Doctor Eduardo Colmenares.

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

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

Office Hours

All office hours will be virtual via zoom.

Monday, Tuesday, Wednesday, Thursday: 10:00 am to 11:00 am.

Friday: No class this day, no office hours.

ZOOM information

[Zoom Link](#)

Course Description

Introduces the students to the theory and practice of numerical analysis/methods.

Most scientists and engineers are sooner or later faced with computing tasks that require some knowledge of numerical analysis.

Textbook

Is the textbook required? The answer is No, however access to the book is strongly recommended since problems & reading assignments can occur and material from the book can be included on exams.

Textbook # 1 - name: Numerical Methods for Engineers.

Textbook # 1 - Author: Steven C. Chapra & Raymond Canale.

Textbook # 1 - edition: Seventh Edition

Publisher and ISBN: McGraw-Hill, ISBN: 978-0-07-339792-4.

Textbook # 2 - name: Applied Numerical Methods with Matlab for Engineers and Scientists.

Textbook # 2 - Author: Steven C. Chapra

Textbook # 2 - edition: Fourth Edition

Publisher and ISBN: McGraw-Hill, ISBN: 978-0-07-339796-2.

Course Objectives

The purpose of this course is to introduce students to multiple numerical associated concepts of key relevance in multiple fields of science.

Course Prerequisites

Object-Oriented Programming or Data Structures, Mathematical Statistics for Engineers and Scientists, or equivalent, and others as determined by the degree plan.

Expected prior knowledge and skills

The successful student should have competent skills in procedural and object-oriented programming, knowledge of data structures and algorithm analysis, and knowledge of statistical and probabilistic mathematics.

Evaluation Process

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

- You will have four Tests, one weekly, plus one final exam.
- There is no quizzes.
- There is no Homework.
- There is no project.

Attendance

- Attendance is a component of the course grade (five percent). Each student will begin with 100 points for their attendance grade. After the first 100 points will be subtracted from the attendance grade.
- After two absences (No-show or late arrival), the student will be dropped from the class.
- Your instructor will go over the class roster at the beginning of class and will call the students by name, if the student is not present at that time an absence will be given and not removed after arrival. The Attendance grade is 100% under the student's control.
- Additional class attendance related MSU Policies will be applied.

Evaluation Process Summary Table

Category	Percentage
Test 1, Monday June 7	17.5 %
Test 2, Monday June 14	17.5 %
Test 3, Monday June 21	17.5 %
Test 4, Monday June 24	17.5 %
Attendance	5%
Final Exam, Thursday July the 1 st	25 %

Grading Policy

90 to 100 points is an A.

80 to 89.99 points is a B.

70 to 79.99 points is a C.

60 to 69.99 points is a D.

0 to 59.99 points is an F.

Required Hardware

- Regular traditional PC/Mac. Chromebooks are NOT allowed since they do not work really well with D2L.
- At home printer and paper

Scanning Capabilities

Students are required to have access to scanning capabilities from day one until the end of the semester and at all times. The scanning of documents may play a critical part in our tests, final exam, homeworks and quizzes. If you have a smartphone you can take advantage of free scanner apps. Please download the one of your choice and familiarize with it ahead of time.

Tests

No make-up exams will be given, except for the following cases:

- ONLY Properly documented Surgery, Medical Emergency, Death in the family, Presentation at a Conference, some others as determined by the instructor.
- If you miss an exam, the make-up exam you need to notify the instructor and demonstrate with the proper official documentation (signatures, seals, contact information) that an emergency that you could not circumvent existed. This documentation must be presented not later than 24 hours after the test.
 - a. Students who miss an exam due to University business should notify the instructor in advance, and present the sponsoring university member's written justification.
 - b. If your instructor cannot verify or validate the given documentation, then it will consider invalid and no make-up exam will be given.

If you do miss an exam and your case fall in one of the categories above (a), (b), it means that you have a properly documented case. Your instructor will proceed then to design a make-up exam. Be aware that exams are unique, this means that the questions that you will be presented in the make-up exam will be different and this may affect its complexity. 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 (unless decide otherwise by the University). It is the student's responsibility to keep track of the designated date, time.
- The date of our final exam is Thursday July the 1st, class time in our classroom.
- For the final exam students are required have scanner like capabilities. Please prepare well ahead of time, setup your system and have it ready to be used.
- If you have a smartphone you can take advantage of free scanner apps. Please download the one of your choice and familiarize with it ahead of time.

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.
- **Late assignments WILL NOT BE ACCEPTED. This rule will be enforced**
 - What does it mean to be late? Answer: for example, if your assignment is due today at 8:00 am and you attempt to deliver your report by 8:00:01 am (1 second late) then it will be considered late. There will not be exemptions of any kind.

- **Assignments MUST be submitted to the corresponding Dropbox via D2L before it closes (deadline).** If the Dropbox has closed and you cannot upload your assignment to it, then you are late and your assignment will not be accepted.
- Students will have more than enough time to complete their assignment on time.
- Internet outage, computer problems, car problems, work, and several others are NOT a valid excuse for a late delivery.
- 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.

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.

No Procrastination Policy

Students are strongly encouraged to contact the instructor during office hours to clarify questions associated with lectures, exams, assignments, presentations, quizzes, homework, etc. Questions are more than welcome from the moment the assignment is released and stop the day before the assignment, exam, quiz, presentation is due.

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.

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.

- a) 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.
- b) Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.
- c) You are not allowed to leave the classroom. Please take this seriously and into consideration before any test and the final. Prepare yourself to be in the classroom during the entire exam.
- d) If you decide to leave the classroom during a test and/or the final exam, your exam will be collected, and you will not be allowed to continue.

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](#).

RECORDING OF CLASS LECTURES

Permission must be requested in writing & 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.

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](#).

University COVID-19 Policy

All members of the MSU Texas Community (students, faculty, staff, visitors, vendors and contractors) are required to wear protective face coverings on campus or in University facilities as provided below:

- I. Requirements
 - a. In common areas on campus including, but not limited to, classrooms and other spaces used for teaching, research, and creative activity, student center, library, hallways, elevators, stairwells, restrooms, break rooms, foyers, event rooms and lobbies;
 - b. Other areas where physical distancing of at least 6 feet is not maintained. Even when physical distancing of at least 6 feet can be maintained, face coverings are strongly recommended.
- II. Exceptions
 - a. When eating or drinking, which should still be conducted maintaining physical distance;
 - b. In accordance with applicable law (e.g., an accommodation, including for medical reasons, under the Americans with Disabilities Act (ADA), or pursuant to a bona fide religious belief)
 - c. For children under the age of 2 years old; or
 - d. By an instructor/presenter in a classroom or event room when a physical distance of at least 10 feet can be maintained from the class members/audience

Additional COVID 19-Policy

In order to protect your wellbeing and the one of those that you care about, the following preventive measurements will take place:

- a) Office hours will be virtual via ZOOM. Check your syllabus for detailed office hours.
- b) Your Instructor will not touch any computer or USB Drive. NO Exemptions.
- c) Questions associated with ADVISING, degree plans, etc., will be addressed (Virtually-ZOOM) during office hours.

Tentative Agenda

The instructor reserves the right to add, remove, reorder topics as he considered convenient towards the benefit of the class. By the end of the semester you will have a very good understanding of the following categories and multiple non mentioned subcategories.

- Computer Arithmetic
- Numerical Solutions to Non-linear equations
- Root finding Bracketing Methods
- Root finding Open Methods
- Curve Fitting
- Interpolation
- Numerical Differentiation and Integration
- Ordinary Differential Equations