

ENGT 3305, 80458, Computer Aided Problem Solving

Fall 2021

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

This is a 100% online course. It runs from Aug 23 – Dec 10 and uses the A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com/>].

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Ryan Mullen

Email: ryangmullen@tamuct.edu

Office Hours

T,Th, 2-3 pm

Available by appointment at other times.

Student-instructor interaction

I will be available to virtually meet during office hours via Webex to go over concepts or examples, to answer your questions, and to provide homework help.

If you need additional homework help outside of these hours, feel free to email me. You can expect an email response within approximately 24 hours.

WARRIOR SHIELD

Emergency Warning System for Texas A&M University-Central Texas

Warrior Shield is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in Warrior Shield through their myCT email account.

Connect to Warrior Shield by [911Cellular](https://www.tamuct.edu/police/911cellular.html) [<https://www.tamuct.edu/police/911cellular.html>] to change where you receive your alerts or to opt out. By staying enrolled in Warrior Shield, university officials can quickly pass on safety-related information, regardless of your location.

Fall 2021 Return to Campus Plan. For the most recent campus information regarding COVID-19 see the Texas A&M University-Central Texas [Fall 2021 Return to Campus Plan](https://www.tamuct.edu/covid19/) [<https://www.tamuct.edu/covid19/>]

COURSE INFORMATION

Course Overview and description

This course introduces concepts for solving problems numerically using computers. Students will learn to solve engineering problems using spreadsheet methods, mathematical programs, and basic programming. Prerequisite(s): CTC MATH 2314 or equivalent.

Objective or Goal

Student Learning Outcomes

1. Apply basic computer-based problem-solving tools to solve engineering problems
2. Perform engineering calculations using a spreadsheet (Excel)
3. Apply basic programming to solve engineering problems (python)
4. Perform engineering calculations using a Mathematical program (MatLab/Octave)

Required Reading and Textbook(s)

All course materials are available online, as described in the Course Outline available on Canvas.

COURSE REQUIREMENTS

The course will involve quizzes, homework, and exams.

Quizzes (100 points)

There is a short quiz for each video lecture on Canvas. These quizzes are designed to help you pay attention and increase your retention of the material shown in the videos. You will have one chance to retake the quiz to fix any mistakes. Quizzes are graded for credit. (SLO 1-4)

Homework (240 points)

There is one homework assignment each week, due by Friday at 5pm. Homework problems will be graded for credit. To help you do the homework, there are additional example problems and videos working through the examples. Many of the homework problems will be similar to the examples, so I strongly encourage you to use these resources. (SLO 1-4)

Exams (660 points)

There will be three midterm exams. Midterm exams will be open book, open notes, open internet, but not "open neighbor." You are not allowed to ask for help from a person (including internet forums) on the exam. The exam will be open for one week, so you may take it at any time during those days. The specific days that the exam will be open is specified on the course schedule. I will provide additional details about the exam format during the in-class review before each exam. (SLO 1-4)

This class does not include a final exam.

Grading Criteria Rubric and Conversion

Activity	Points	% of Final Grade
Quizzes	100	10
Homework	240	24
Exams	660	66

Course Grades will be assigned by the following scale based on weighted grade percentage

Grade	Weighted Grade (%)
A	≥ 90.0
B	80.0 - 89.9
C	70.0 - 79.9
D	60.0 - 69.9
F	< 60.0

Posting of Grades

All submitted work will be graded within 2 weeks of the due date and results posted on Canvas.

Grading Policies

Late Work

Late work will not be excepted without prior approval. You must plan your time well in order to turn things in on time. If there are extenuating circumstances, an individual extension may be granted after speaking with the instructor.

Missed Exams

If you cannot make an exam session, you **must** schedule an alternative period beforehand. Missed exams should be taken before the scheduled time, but must be taken within a week of the actual exam.

Appeals

If the student wishes to appeal a grade, they must do so within 1 week of receiving the graded paper. Students should save all their work to ensure that no clerical errors are made in grade reporting.

Plagiarism/Cheating

All submitted work must be your own. Turning in an assignment that is identical to one submitted by another student is academic dishonesty. Any student found to be cheating and/or having plagiarized will receive an immediate failing grade and be referred to the office of student conduct. More info below under academic integrity.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

A tentative schedule is shown below. This schedule may be changed at the discretion of the instructor.

Week	Dates	Topics	Assignment Due
1	Aug 23-27	Introduction to Numerical Methods (SLO 1) Introduction to Excel and Python (SLO 1-3)	HW 1
2	Aug 30-Sep 3	Units and Error (SLO 1-3) Functions (SLO 1-3)	HW 2
3	Sep 6-10	Conditionals (SLO 1-3) Loops (SLO 1-3)	HW 3
4	Sep 13-17	Arrays (SLO 1-3) File I/O and Plotting (SLO 1-3)	HW 4
5	Sep 20-24	Debugging (SLO 1-3) Review 1	HW 5
6	Sep 27-Oct 1	Exam 1	Exam 1
7	Oct 4-8	Fixed Point Methods (SLO 1-3) Non-Linear Equations (SLO 1-3)	HW 6
8	Oct 11-15	Optimization (SLO 1-3) Engineering Problems (SLO 1-3)	HW 7
9	Oct 18-22	Least Square Fitting (SLO 1-3) Interpolation (SLO 1-3)	HW 8
10	Oct 24-29	Newton-Coates Integration (SLO 1-3) Review 2	HW 9
11	Nov 1-5	Exam 2	Exam 2
12	Nov 8-10,12	Matlab: Basic Concepts (SLO 1,4) Matlab: Plotting (SLO 1,4)	HW 10
13	Nov 15-19	Matlab: Scripts & Functions (SLO 1,4) Matlab: Decision Making (SLO 1,4)	HW 11
14	Nov 22-24	Matlab: Loops (SLO 1,4) Review 3	HW 12
15	Nov 29-Dec 3	Exam 3	Exam 3
16	Dec 6-10	No class	

Important University Dates

See the academic calendar: <https://www.tamuct.edu/registrar/academic-calendar.html>

TECHNOLOGY REQUIREMENTS AND SUPPORT

Computer access will be needed to complete homework and exams. We will use Microsoft Excel, python, and Matlab/Octave.

Office hours are online. Your computer will need a microphone and speakers/headphones and preferably video.

Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system.

We strongly recommend the latest versions of Chrome or Firefox browsers. Canvas no longer supports any version of Internet Explorer.

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com/>] or access Canvas through the TAMUCT Online link in myCT [<https://tamuct.onecampus.com/>]. You will log in through our Microsoft portal.

Username: Your MyCT email address. Password: Your MyCT password

Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select “Chat with Canvas Support,” submit a support request through “Report a Problem,” or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

Online Proctored Testing

A&M-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio also requires the Chrome web browser with their custom plug in.

Other Technology Support

For log-in problems, students should contact Help Desk Central, 24 hours a day, 7 days a week

Email: helpdesk@tamu.edu

Phone: (254) 519-5466

[Web Chat](http://hdc.tamu.edu): [<http://hdc.tamu.edu>]

Please let the support technician know you are an A&M-Central Texas student.

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

Drop Policy

If you discover that you need to drop this class, you must complete the [Drop Request](#) Dynamic Form through Warrior Web.

[<https://dynamicforms.ngwebsolutions.com/casAuthentication.ashx?InstID=eaed95b9-f2be-45f3-a37d-46928168bc10&targetUrl=https%3A%2F%2Fdynamicforms.ngwebsolutions.com%2Fsubmit%2FForm%2Fstart%2F53b8369e-0502-4f36-be43-f02a4202f612>].

Faculty cannot drop students; this is always the responsibility of the student. The Registrar’s Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Registrar’s Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar’s Office immediately. You are to attend class until the procedure is complete to avoid

penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

Academic Integrity

Texas A&M University-Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. All academic misconduct concerns will be referred to the Office of Student Conduct. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more [information regarding the Student Conduct process](https://www.tamuct.edu/student-affairs/student-conduct.html),
[https://www.tamuct.edu/student-affairs/student-conduct.html].

If you know of potential honor violations by other students, you may [submit a report](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0),
[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0].

Academic Accommodations

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations, please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information, please visit our [Access & Inclusion](https://tamuct.instructure.com/courses/717) Canvas page (log-in required)
[https://tamuct.instructure.com/courses/717]

Important information for Pregnant and/or Parenting Students

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit [Student Affairs](https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html) [https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in

the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

Tutoring

Tutoring is available to all A&M-Central Texas students, on a remote online basis. Visit the Academic Support Community in Canvas to view schedules and contact information. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Student success coaching is available online upon request.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, success coaching, or have any other question, contact Academic Support Programs at (254) 501-5836, visit the Office of Student Success at 212F Warrior Hall, or by emailing studentsuccess@tamuct.edu.

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

University Writing Center

University Writing Center: Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (A&M–Central Texas) is a free service open to all A&M–Central Texas students. For the Fall 2021 semester, the hours of operation are from 10:00 a.m.-5:00 p.m. Monday thru Thursday in Warrior Hall 416 (with online tutoring available every hour as well) with satellite hours available online only Monday thru Thursday from 6:00-9:00 p.m. and Saturday 12:00-3:00 p.m.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via WOnline at <https://tamuct.mywconline.com/>. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor by making an appointment via WOnline at <https://tamuct.mywconline.com/>. In addition, you can email Dr. Bruce Bowles Jr. at

bruce.bowles@tamuct.edu if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor.

University Library

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 400,000 eBooks and 82,000 journals, in addition to the 96,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place virtually through WebEx, Microsoft Teams or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index].

OPTIONAL POLICY STATEMENTS

A Note about Sexual Violence at A&M-Central Texas

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Wellness and Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [https://www.tamuct.edu/compliance/titleix.html].

Behavioral Intervention

Texas A&M University-Central Texas cares about the safety, health, and well-being of its

students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2) online [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/bit) website for more information [https://www.tamuct.edu/bit]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5800.

OTHER POLICIES

Copyright Notice

Students should assume that all course material is copyrighted by the respective author(s). Reproduction of course material is prohibited without consent by the author and/or course instructor. Violation of copyright is against the law and Texas A&M University-Central Texas' Code of Academic Honesty. All alleged violations will be reported to the Office of Student Conduct.

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