MATH 5380-115, 60205, PROJECTS IN EDUCATIONAL AND APPLIED MATHEMATICS

Summer 2023
Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

June 5-July28, 2023
This is a 100% online course, and uses the A&M-Central Texas Canvas Learning Management System [https://tamuct.instructure.com/].

INSTRUCTOR AND CONTACT INFORMATION

Instructors: Christopher Thron
Office: All contact is online
Phone, text, and WhatsApp: (585) 204-0314
Email: Please email instructor via Canvas email.
Google Meet (for online meetings): chris.thron@gmail.com
You may contact me at any time by email or text. Often I can respond immediately, and if necessary we can meet online to answer your question right away. WhatsApp is also OK, but I may not see it right away.

Office Hours
The instructor is generally available online from 9 A.M.-2 P.M. on weekdays and Saturday.
Students are encouraged to make appointments to discuss issues with homework (both before and after grading).

Student-instructor interaction
AThe instructor will schedule two regular online sessions per week for discussion and problem-solving. Sessions will be accessed within Canvas, and will be recorded.

Emergency Warning System for Texas A&M University-Central Texas
SAFEZONE. SafeZone provides a public safety application that gives you the ability to call for help with the push of a button. It also provides Texas A&M University-Central Texas the ability to communicate emergency information quickly via push notifications, email, and text messages. All students automatically receive email and text messages via their myCT accounts. Downloading SafeZone allows access to push notifications and enables you to connect directly for help through the app.

You can download SafeZone from the app store and use your myCT credentials to log in. If you would like more information, you can visit the SafeZone website [www.safezoneapp.com].

To register SafeZone on your phone, please follow these 3 easy steps*:*
1. Download the SafeZone App from your phone store using the link below:
   o iPhone/iPad: [https://apps.apple.com/app/safezone/id533054756]
   o Android Phone / Tablet
     [https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp]
2. Launch the app and enter your myCT email address (e.g. {name}@tamuct.edu)

3. Complete your profile and accept the terms of service

For updates on COVID information, please monitor the University <u>website</u>
[https://www.tamuct.edu/covid19/]

COURSE INFORMATION

Course Overview and description

This course gives students the opportunity to propose, design, and execute self-contained projects in applied or educational mathematics that address real-world issues.

Course Objective or Goal
Student Learning Outcomes

1. Identify a need in the area of mathematical educational, or a practical need that may be addressed mathematically.
2. Formulate a proposed solution that addresses the need identified. (The solution may be a research paper, curriculum plan, or software).
3. Create a plan of action for realizing the solution
4. Carry out the plan of action.
5. Prepare for

Competency Goals Statements (certification or standards)

As a result of this course, students will be able to provide large-scale solutions to real-world issues in mathematics education and research.

Required Reading and Textbook(s)
COURSE REQUIREMENTS

Course Requirements: (include point values for each- not just a percentage)

- *For papers to be graded, please be specific in your rubrics whether you will grade APA style, spelling, grammar, writing skills, content, etc.).*
- *Specify what student learning outcome is targeted by a particular assignment or assessment.*
- *Include explanation on how it will be evaluated and include a rubric when applicable.*
- *Specify your grading policy.*

Required Reading and Textbook(s)
Materials include published and unpublished research, to be located and accessed via open-access resources on the web or via the TAMUCT library. Such materials may include (this list is not comprehensive):

- Articles from arxiv.org (Example: <u>https://arxiv.org/abs/2009.08310</u>)
- Articles from mathematical and technical journals (Examples: <u>https://www.mdpi.com/1999-4893/13/11/300</u>,

- Online courses (Example: https://theoreticalminimum.com/courses)
- Mathematics texts (Example: https://sl2x.aimath.org/book/aafmt/)

COURSE REQUIREMENTS AND GRADING
Students are required to keep a spreadsheet record of their activities for this class. The spreadsheet should have three columns: Date, hours worked, and summary of activities. The student is expected to put in 120 hours (16 weeks for 7.5 hours per week). Between 110-120 hours, the maximum grade is B. Below 110 hours, the maximum grade is C.

The basis for the course grade depends on the type of project: the possibilities are:
Software development: Student will post completed, documented software on GitHub. A software grading rubric is included on the next page.
Report/Curriculum: Student will produce a summary report of the research project, to be completed by the end of the semester. The report will be evaluated on the basis of originality, correctness, completeness, and clarity. Publishable work will receive an 'A' grade.
Grading rubrics are included on the following page, with grading guidance as follows:

Average score on all items	4 and above	3.5-4	3-3.5	Below 3
Course grade				

Software:

	1	2	3	4	5	
	Not evident	Attempted but not successful	Present but needs improvement	Present and effective	Goes beyond needs of most users	
Design						
The user is able to move throughout the application without repetition or confusion						0
The software is highly interactive						0
The application accommodates users based on a variety of abilities						0
						0
Total						**0**
Content						
The software correctly performs tasks it is designed for						0
Coding follows agreed-upon syntax and formatting standards						
Software is commented so that programmers can follow the logic						
Software has been thoroughly tested, and tests have been documented						0
Total						**0**
Interface						
Screen display designs are easy to read						0
Screen elements enhance, not distract from the content						0
The application is consistent in how all of its tasks are executed						0
Display is clean, simple, and attractive						0
Users have control over the navigation						0
Controls for manipulating the						0
Total						**0**
Documentation						
The user's manual is laid out in a logical manner						0
User's manual sufficiently covers the software's functions						0
User's manual uses clear, non-technical language whenever possible						0
Total:						**0**
					Grand Total:	**0**

Report/curriculum:

CATEGORY	4	3	2	1
Introduction/ Thesis ____	*exceptional introduction that grabs interest of reader and states topic. **thesis is exceptionally clear, arguable, well-developed, and a definitive statement.	*proficient introduction that is interesting and states topic. **thesis is clear and arguable statement of position.	*basic introduction that states topic but lacks interest. **thesis is somewhat clear and arguable.	*weak or no introduction of topic. **paper's purpose is unclear/thesis is weak or missing.
Quality of Information/ Evidence ____	*paper is exceptionally researched, extremely detailed, and historically accurate. **information clearly relates to the thesis.	*information relates to the main topic. **paper is well-researched in detail and from a variety of sources.	*information relates to the main topic, few details and/or examples are given. **shows a limited variety of sources.	*information has little or nothing to do with the thesis. **information has weak or no connection to the thesis.
Support of Thesis/Analysis ____	*exceptionally critical, relevant and consistent connections made between evidence and thesis. **excellent analysis.	*consistent connections made between evidence and thesis **good analysis.	*some connections made between evidence and thesis. **some analysis.	*limited or no connections made between evidence and thesis. **lack of analysis.
Organization/ Development of Thesis ____	*exceptionally clear, logical, mature, and thorough development of thesis with excellent transitions between and within paragraphs.	*clear and logical order that supports thesis with good transitions between and within paragraphs.	*somewhat clear and logical development with basic transitions between and within paragraphs.	*lacks development of ideas with weak or no transitions between and within paragraphs.
Conclusion ____	*excellent summary of topic with concluding ideas that impact reader. **introduces no new information.	*good summary of topic with clear concluding ideas. **introduces no new information.	*basic summary of topic with some final concluding ideas. **introduces no new information.	*lack of summary of topic.
Style/Voice ____	**word choice is specific, purposeful, dynamic and varied. ***sentences are clear, active (subject-verb-object), and to the point.	**word choice is specific and purposeful, and somewhat varied throughout. ***sentences are mostly clear, active (SVO), and to the point.	**word choice is often unspecific, generic, redundant, and clichéd. ***sentences are somewhat unclear; excessive use of passive voice.	**word choice is excessively redundant, clichéd, and unspecific. ***sentences are very unclear.
Grammar/Usage/ Mechanics ____	*control of grammar, usage, and mechanics. **almost entirely free of spelling, punctuation, and grammatical errors.	*may contain few spelling, punctuation, and grammar errors.	*contains several spelling, punctuation, and grammar errors which detract from the paper's readability.	*so many spelling, punctuation, and grammar errors that the paper cannot be understood.
Works Cited/Bibliography	* Entries complete and formatted correctly	* entries mostly correct with few omissions	* Frequent errors in citations	*Numerous errors.

COURSE OUTLINE AND CALENDAR
Complete Course Calendar
Student will have biweekly meetings with the instructor throughout the duration of the course.

Important University Dates

https://www.tamuct.edu/registrar/academic-calendar.html]

TECHNOLOGY REQUIREMENTS AND SUPPORT
Technology Requirements
You will need a computer that can be used for videoconferencing.
Accomplishment of the project may require the purchase of software.

This course will use the A&M-Central Texas Instructure Canvas learning management system.
We strongly recommend the latest versions of Chrome, Firefox, Edge, or Safari
browsers. Canvas will run on Windows, Mac, Linus, iOS, android, or any other device with a
modern web browser. **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/] by clicking on the
"TAMUCT Online Canvas" tile. You will then log in through our Microsoft portal.

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

Canvas Support

Use the Canvas Help tab, located at the bottom of the left-hand menu, for issues with
Canvas. You can search the support articles or use the Email, Call, or Chat buttons at the
bottom of the support pop-up to contact the Canvas Help Desk.

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
requires use of the Chrome web browser with their custom plug in installed.

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

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

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
Warrior Center for Student Success, Equity 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 Canvas page (log-in required) [https://tamuct.instructure.com/courses/717]

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].

If you know of potential honor violations by other students, you may submit a referral, [https://cm.maxient.com/reporting.php?TAMUCentralTexas].

Drop Policy

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

[https://federation.ngwebsolutions.com/sp/startSSO.ping?PartnerIdpId=https://eis-prod.ec.tamuct.edu:443/samlsso&SpSessionAuthnAdapterId=tamuctDF&TargetResource=https%3a%2f%2fdynamicforms.ngwebsolutions.com%2fSubmit%2fStart%2f53b8369e-0502-4f36-be43-f02a4202f612].

Faculty cannot drop students; this is always the responsibility of the student. The Records and Admissions Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Records and Admissions 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 Records and Admissions 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.

Pregnant and/or Parenting Students Rights and Accommodations

A&M-Central Texas supports students who are pregnant, experiencing pregnancy-related conditions, and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Associate Dean in the Division of Student Affairs, (254) 501-5909, can assist students who are pregnant, experiencing pregnancy-related conditions, and/or parenting by provide flexible and individualized reasonable

accommodations. Students should seek out assistance as early in the pregnancy as possible through the Pregnancy & Parenting webpage [https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html]. For more information, please visit Student Affairs [https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html]. If you would like to read more about these requirements and guidelines 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 specifically prohibits discrimination against a student based on pregnancy, childbirth, false pregnancy, termination of pregnancy, or recovery from any of these conditions [https://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.html].

Students experiencing any form of discrimination due to any of these conditions are encouraged to reach out to the Title IX Coordinator, 254.519.5716, titleix@tamuct.edu, Founders Hall 317B, or the Associate Dean of Student Affairs, 254.501.5909, Warrior Hall 105.

Title IX Rights and Reporting Responsibilities

A&M-Central Texas is committed to creating a safe and open learning environment for all students. If you or another student has experienced any form of gender discrimination or sexual misconduct, including sexual harassment, sexual assault, dating/domestic violence, and/or sex-based stalking, help and support are available. Our university strongly encourages all members of our campus community to report incidents and seek support for gender discrimination and sexual misconduct through the Title IX Office. You may contact the Title IX Office at 254.519.5716, titleix@tamuct.edu, Founders Hall 317B, or learn more by visiting the Title IX webpage [https://www.tamuct.edu/compliance/titleix.html].

Please be aware that that under Title IX, Texas Senate Bill 212, and System Regulation 08.01.01, [https://policies.tamus.edu/08-01-01.pdf] all university employees are mandated reporters and are required to disclose information about suspected or alleged violations as listed above and defined in System Regulation 08.01.01. If the Title IX Office receives information about an incident, they will reach out to offer information about resources, rights, and procedural options as a member of the campus community. Although I have an obligation to report, you will, in most cases, control how your case will be handled. When working with the Title IX Office you will have access to resources and accommodations but also have the opportunity to express if you wish to move forward with an investigation. Our goal is to make sure you are aware of the options available to you as a student. Community members are not required to respond to this outreach.

If you or another student wishes to speak to a confidential employee who does not have this reporting responsibility, you can contact the Student Wellness & Counseling Center, [https://www.tamuct.edu/student-affairs/student-counseling.html], 254.501.5955, or swacc@tamuct.edu, located in Warrior Hall Room 207L or the Student Support Advocate, 254.501.5978 or ssa@tamuct.edu, located in founder Hall Room 317D.

Tutoring and Success Coaching

Tutoring and success coaching services are available to all A&M-Central Texas students, both

virtually and in-person.

To schedule tutoring sessions or view tutor availability, please contact Warriorcenter@tamuct.edu or visit Warrior Hall, 111.

If you have questions about these or other academic support services or are interested in becoming a tutor, please contact the Warrior Center for Student Success, Equity and Inclusion at (254) 501-5836, email us at WarriorCenter@tamuct.edu. You are welcome to visit the Warrior Center at Warrior Hall, suite 212.

Chat live with a remote 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 Library & Archives

The University Library & Archives provides many services in support of research across campus and at a distance. We offer over 350 electronic databases containing approximately 631,525 eBooks and 75,149 journals, in addition to the 97,443 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. Schedule an appointment here [https://tamuct.libcal.com/appointments]. 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 workspaces, 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 [https://tamuct.libguides.com/index]

University Writing Center

University Writing Center: For the summer semesters, all University Writing Center (UWC) tutoring services are entirely online. The hours of operation are from 10:00 a.m.-4:00 p.m. Monday through Thursday with additional hours Monday through Thursday nights from 6:00-9:00 p.m. The UWC is also offering hours from 12:00-3:00 p.m. on Saturdays.

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 WCOnline [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.

OTHER 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].

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 online

[https://cm.maxient.com/reporting.php?TAMUCentralTexas].

Anonymous referrals are accepted. Please see the Behavioral Intervention Team 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 254-501-5805.