CIS 3306-110 (#10369) – Data Visualizations

COURSE DATES, MODALITY, AND LOCATION

The class starts on the week of January 16th, 2023 and ends on the weeks of May 12th, 2023.

This is fully online and uses the A&M-Central Texas Canvas Learning Management System [http://tamuct.instructure.com].

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Mahdi Najafabadi
Office: N/A
Phone (Text): (929) 276-2434
Email: m.najafabadi@tamuct.edu (Preferred: Canvas Inbox)

Student-instructor interaction

Contact me via Canvas first.
If you didn't hear back from me by 24 hours, then feel free to email me.
For urgent or complicated issues, feel free to text me.

WARRIOR SHIELD

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: [http://apps.apple.com/app/safezone/id533054756]
    o Android Phone / Tablet
       [http://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

COURSE INFORMATION
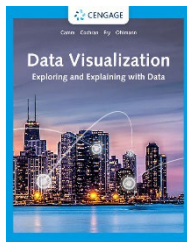
Course Overview and Description

Data visualization makes it easier to understand the data. The goal of this course is to introduce students to data visualization including both the principles and techniques. Students will learn the value of visualization, specific techniques in data visualization and will understand how to best leverage visualization methods. The course will focus on fundamental concepts and best practices for effective communication with data.

Student Learning Outcomes

Successful completion of this course enables students to:

- Understand and describe principles of visual perception
- Choose an appropriate visual display depending on the context for visualizing data
- Use pre-attentive attributes in data visualization
- Control the overall appearance of graphs
- Create a variety of bar graphs, line graphs, and scatter plots
- Summarize data distributions with histograms, density curves, and box plots
- Provide annotations to help viewers interpret data
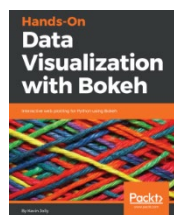- Use programming scripts for exploring and visualizing data

Required and Suggested Textbook

Title: *Data Visualization: Exploring and Explaining with Data*
Authors: Jeffrey D. Camm, James J. Cochran et al.
Publisher: Cengage Learning, 2022 – ISBN: 97803 57711415

Suggested:
Title: *Visualization Analysis and Design*
Author: Tamara Munzner
Publisher: CRC Press – ISBN: 9781466508934

Title: *Hands-On Data Visualization with Bokeh*
Author: Kevin Jolly
 Publisher: Packt – ISBN: 9781789135404

COURSE REQUIREMENTS

Exams: There will be two exams: midterm and final. Each is worth 15 points (15%). Details about the midterm and final exams will be provided to you in the class

Assignments: During the semester, you will get different assignments that measure your understanding to the material and help you gain programming skills. Multiple submissions before the deadline are allowed. You need to zip the files before submission if the assignment

has multiple files. Before you submit any assignment, run it on your computer and make sure it works. In addition, you need to submit a screenshot to prove that your code works. Assignments are worth 35 points (35%)

Term Project: There will be one term project that is worth 35 points (35%). The details will be provided later in the class.

Grading Criteria Rubric and Conversion

The final grade for the course will be based upon the following:

Item	Points	Percentage
Exams	30	30%
Assignments	35	35%
Project	35	35%
Total	100	100%

Point Range	Letter Grade
90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

Grading Policies and Posting of Grades

All student grades will be posted on the Canvas Grade Book and students should monitor their grading status through this tool. Late assignments are penalized by 10% for each day delay, up to three days only. Delayed assignments will not receive a grade after three days of delay.

Safety Valves and Special Accommodations

Since there may be occasions in your life when missing a class meeting or missing a deadline for an assignment is simply unavoidable, this course has a safety valve. Please use this opportunity carefully in managing your academic life:

- Safety Valve: One lowest grade homework assignment will be dropped and would not be counted towards your final grade.

If you become seriously ill during the semester or become derailed by unforeseen life circumstances, I will attempt to schedule a meeting with you to make arrangements for you to withdraw from the course with documentation.

Friendly suggestion: **DO NOT USE YOUR SAFETY VALVES EARLY IN THE SEMESTER.**

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

Below is a tentative schedule that is subject to change by instructor.

Week	Topics	Assignment(s)
Week 1 (1/17 – 1/22)	Syllabus Introduction to data visualization	Assignment 1
Week 2 (1/23 – 1/29)	Best Practices in Data Visualization	Assignment 2
Week 3 (1/30 – 2/5)	Choosing an Effective Presentation	Assignment 3
Week 4 (2/6 – 2/12)	Visualizing Variability	Assignment 4
Week 5 (2/13 – 2/19)	Exploring Data Visually	Assignment 5
Week 6 (2/20 – 2/26)	Influence with Data Visualization	N/A
Week 7 (2/27 – 3/5)	Dashboards and Storytelling	Assignment 6
Week 8 (3/6 – 3/12)	Introduction to Tableau Desktop	Assignment 7
(3/13 – 3/19)	*Spring Break (No Classes)*	
Week 9 (3/20 – 3/26)	Tableau Calculations and Dashboards	Mini Project 1 Assignment 8
Week 10 (3/27 – 4/2)	**Midterm**	
Week 11 (4/3 – 4/9)	Python's Bokeh Library Introduction and Hand-on Experience	Assignment 9
Week 12 (4/10 – 4/16)	Python's Bokeh Library Creating Basic Charts	Mini Project 2 Assignment 10
Week 13 (4/17 – 4/23)	Python's Bokeh Library Plotting Data	Assignment 11
Week 14 (4/24 – 4/30)	Python's Bokeh Library Data Structures and Visual Enhancements	Mini Project 3
Week 15 (5/1 – 5/7)	Python's Bokeh Library Interactive Dashboards	
Week 16 (5/8 – 5/12)	**Final Exam**	

Important University Dates

January 17, 2023	Classes Begin for Spring Semester
January 19, 2023	Deadline for Add, Drop, and Late Registration for 16- and First 8-Week Classes
January 24, 2023	Deadline to Drop First 8-Week Classes with No Record
February 1, 2023	Deadline to Drop 16-Week Classes with No Record
February 24, 2023	Deadline to Drop First 8-Week Classes with a Quit (Q) or Withdraw (W)
March 10, 2023	Classes end for 1st 8-Weeks Session
March 13-17, 2023	Spring Break (No Classes - Administrative Offices Open)
March 20, 2023	Class Schedule Published for Summer Semester
March 20, 2023	Add, Drop, and Late Registration Begins for Second 8-Week Classes $25 Fee assessed for late registrants
March 20, 2023	Classes Begin for Second 8-Week Session
March 22, 2023	Deadline for Add, Drop, and Late Registration for Second 8-Week Classes
March 27, 2023	Deadline to Drop Second 8-Week Classes with No Record
March 31, 2023	Deadline for Graduation Application for Ceremony Participation
April 3, 2023	Registration Opens for Summer Semester
April 7, 2023	Deadline to Drop 16-Week Classes with a Quit (Q) or Withdraw (W)
April 28, 2023	Deadline to drop Second 8-week Classes with a Quit (Q) or Withdraw (W).
May 12, 2023	Deadline to Withdraw from the University for 16- and Second 8-Week Classes
May 12, 2023	Spring Semester Ends

More Info: https://catalog.tamuct.edu/undergraduate_catalog/general-information/academic20calendars20and20final20exam20schedule

TECHNOLOGY REQUIREMENTS AND SUPPORT

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]
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 [http://catalog.tamuct.edu/registration-records/drop-withdrawl].

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].

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].

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]

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 [http://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 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, both virtually and in-person. Student success coaching is available online upon request.

If you have a question, are interested in becoming a tutor, or in need of success coaching contact the Warrior Center for Student Success, Equity and Inclusion at (254) 501-5836, visit the Warrior Center at 212 Warrior Hall, or by emailing WarriorCenter@tamuct.edu.

To schedule tutoring sessions and view tutor availability, please visit Tutor Matching Services [http://tutormatchingservice.com/TAMUCT] or visit the Tutoring Center in 111 Warrior Hall.

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 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 Spring 2023 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 WCOnline [http://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 WCOnline [http://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.
[Schedule an appointment here](http://tamuct.libcal.com/appointments/?g=6956) [http://tamuct.libcal.com/appointments/?g=6956]. 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](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 online [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2].

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.

OTHER POLICIES

1. Instructor reserves the right to modify the syllabus during the course of the semester for the benefit of the students.

2. Instructor reserves the right to supplement the material presented in the text with additional material that may benefit the students by either providing additional information or a different point of view.

3. Instructor expects that the students will act in a curious and professional manner in all interactions with other students and the instructor.

4. Instructor reserves the right to modify grading rubrics. Changes to grading rubrics are only made to current and possibly future assignments.

5. Instructor will not accept assignments after the last day of classes.

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.