

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel



CSCI 556.01W Data Analysis & Visualization

COURSE SYLLABUS: Summer 2023

(Revision date: May 21, 2023)

INSTRUCTOR INFORMATION

Instructor: Jinoh Kim, Ph.D.

Office Location: CS/JOUR 217

Office Hours: Will be announced through course page

University Email Address: jinoh.kim@tamuc.edu

COURSE INFORMATION

Textbook(s):

- Practical Statistics for Data Scientists (50 Essential Concepts), 1st Edition, ISBN 10: 1491952962 / ISBN 13: 9781491952962

Software Required:

- Weka (<http://old-www.cms.waikato.ac.nz/~ml/weka/>)

Optional Texts and/or Materials:

- Data Mining: Practical Machine Learning Tools and Techniques, 4th Edition. ISBN-13: 978-0128042915, ISBN-10: 0128042915

Course Description

Big scientific data sets are growing exponentially both in size and complexity. Extracting meaningful information from these data requires not only programming skills, but also understanding the analysis work-flows, mathematical models and visualization tools that help to condense large amounts of information into a comprehensible story. We will introduce standard statistical data analysis and modeling methods such as correlation functions, linear regression, clustering, pattern extraction, classification, data mining, as well as Monte Carlo methods which are commonly used in creating simulations in the computational sciences. Different analysis and visualization packages popular in scientific modeling, analysis, and visualization will be introduced.

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Student Learning Outcomes (Should be measurable; observable; use action verbs)

1. The student will gain detailed knowledge about the goal and techniques of the data analysis and visualization process.
2. The student will understand the steps in characterizing and understanding data.
3. The student will be able to build effective predictive models.
4. The student will be able to build models that rely on memorizing training data.
5. The student will be able to build models that have an explicit additive structure.
6. The student will be able to build models for data that has no labeled training data available: Unsupervised learning
7. The student will be able to use software applications for data analysis.

COURSE REQUIREMENTS

Prerequisites

None

Minimal Technical Skills Needed

- Basic knowledge of computer and operating systems
- Basic knowledge of data structure, algorithms, and statistics/probability

Instructional Methods

- Textbook reading assignments
- Recorded lecture with presentation slides
- Exams

Student Responsibilities or Tips for Success in the Course

- Reading textbook is essential!
- Should be well (fully) prepared for exams
- This is a 5-week (asynchronous) Web-based course. The students must read announcements and access course materials on a daily basis posted on the course page or through email. Also, the students must respond if the instructor asks to do so within 24 hours.

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GRADING (Tentative)

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Weights of the assessments in the calculation of the final letter grade:

| Components | Weight | Remarks |
|--------------|--------|--|
| Midterm exam | 50% | Two exams and the higher will be taken |
| Final exam | 50% | One exam |

Attendance Policy:

This is an asynchronous, Web-based section and there will be no synchronous meetings (as it is not allowed by the university). For successful communications, the students are required for reading announcements with no significant delay (within 48 hours), disseminated through the course page and email messages.

Late Policy (Assignments):

The deadline for the assignment can be extended with a 15% penalty per day, up to two days (48 hours). Any submission later than 48 hours after the deadline will not be accepted and graded. No extension/resubmission request will be accepted (and even responded to); One lowest assignment score will be discarded.

Makeup Policy (Exams):

Makeup exams will not be given for any reason. However, students will have two midterm exams, and the higher score will only be considered for the final grade calculation. If a student is unable to take the final exam for any emergency reason, the student may receive an 'X' (incomplete), which is defined as follows:

"When an "X" is given for a grade in a course, the credit hours and grade point averages are not included until a grade is received which can be up to one year. If the "X" is not removed by that time, the grade becomes an F, and the hours are included in the number of hours attempted."

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TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

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COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

N/A

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

N/A

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Undergraduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

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[Graduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

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Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

Website: [Office of Student Disability Resources and Services](http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

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Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

A&M-Commerce Supports Students' Mental Health

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COURSE OUTLINE / CALENDAR

Tentative Schedule: The schedule may be subject to change.

- Week 1: EDA, distribution, input/output (Lecture #1-#4)
- Week 2: Regression/prediction, ML (Lecture #5-#6)
- Week 3: Statistical classification, unsupervised learning (Lecture #7-#8)
- Week 4: Advanced topics (Lecture #9)
- Week 5: Final exam

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