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

ENGR 213: Engineering Probability & Statistics

Section 02E, Course Syllabus, Spring 2022

INSTRUCTOR INFORMATION

Instructor	Gerald L. Fudge, PhD
Office Location	AG/ET 216
Office Hours	Wednesday (1:00 pm – 4:30 pm) Tuesday (3:00 pm – 4:30 pm)
Office Phone	903-468-8122
Office Fax	903-886-5960 (Inform instructor when fax is sent)
University Email Address	Gerald.Fudge@tamuc.edu
Preferred Form of Communication	email
Communication Response Time	Typically, within 48 hours on weekdays for email

COURSE INFORMATION

Class Meeting Schedule	Meets 1/12/2022 through 5/13/2022
Class Meeting Dates	MWF 10:00 am – 10:50 am
Classroom	AG/ET 211
Textbooks Required	• Schaum's Outlines, Probability and Statistics, 4th Edition (ISBN 978-0071795579) • Principle of Statistics, M.G. Bulmer, Dover Publications (ISBN 978-0486637600)
Software Required	Microsoft Office, MATLAB (can use school MATLAB)
Optional Texts and/or Materials	none

COURSE DESCRIPTION

This course covers the role of statistics in engineering, probability, discrete and continuous probability distributions, joint probability distributions, random sampling and data description, point estimation, statistical intervals.

Prerequisites: MATH 192 or MATH 2414 or concurrent enrollment.

Student Learning Outcomes

Upon successful completion of this course, students will achieve the following learning outcomes:

- Use statistical methodology and tools in the engineering problem-solving process
- Understand the basic concepts of probability, random variables, probability distribution, and joint probability distribution (PDF)
- Compute the point estimation of parameters, explain sampling distribution and PDF
- Construct confidence intervals on parameters for a single dimensional random variable
- Be able to use engineering software such as MATLAB to model probability and statistics problems
- Complete and interpret descriptive statistics using numerical and graphical techniques

COURSE REQUIREMENTS

Minimal Technical Skills Needed

The prerequisites capture the minimum technical skills needed at the start of the class. Although programming and/or MATLAB experience is helpful, this is not required prior to starting the class.

Instructional Methods

The instructional methods in this course include lectures, class discussion and participation, engineering software exercises, quizzes, homework assignments, and exams. Instruction will be based on the course textbooks and instructor experience. This course will take a holistic engineering approach as we integrate different knowledge fields in order to better prepare students for real-life situations that are more complex than standard textbook or typical classroom examples.

Student Responsibilities or Tips for Success in the Course

- **Attendance & Participation**: For optimum learning and grades, students need to attend class and participate in discussion, quizzes, laboratory exercises, and exams; note that attendance and participation is a graded component.
- **Homework Assignments**: Working through example problems is a critical component to learning. The homework sets will include review problems in addition to problems illustrating new material. Homework will be assigned most weeks. The homework assignments will include both written problems as well as MATLAB exercises.
- **Submission of Assignments**: Students shall submit assignments either in class or in the assigned drop boxes on D2L (directions will be provided in class). If problems are encountered using D2L, then email may be used as a backup with instructor permission. Late work is not accepted, unless student has an acceptable excuse proven by a doctor's note or any legal documentation.
- **Collaboration**: Students may collaborate on homework, but must turn in their own work.

- **Soft-Copy Report Formats**: Unless directed and/or approved by the instructor, only MS Office-compatible formats (.doc, .docx, .rtf, .xls, .xlsx, .ppt, .pptx, and .pdf) will be accepted for submitted reports. For most reports, PDF will be the preferred format.
- **Exams**: The exams (Midterm, Final Exam) will be closed book & closed notes. Student should bring a scientific calculator. The use of a personal phone is strictly prohibited during exams. A makeup exam may be offered but an official permit for absence that fulfills University procedures must be provided to the instructor in timely manner.
- **Final Project**: The final project will be a team exercise, with approximately 2-3 students per team. Each team will need to identify an appropriate topic for the final project with instructor approval. The projects should allow for participation among all team members, with individual participation forming a part of the individual project grade. The deliverables will include a report, live presentation / demonstration, and a peer review summary of individual contributions to the project. The teams will be formed after the spring break.
- **Quizzes**: Quizzes will be used to assess problem solving skills and provide student feedback. Student should bring a scientific calculator to class for quizzes.

GRADING

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

A	B	C	D	F
100 - 90	89 - 80	79 - 70	69 - 60	59 – 0

Overall grades will be based on a weighted average as shown below:

Assessment Type	**Percent**
Homework	25
Participation and Attendance	10
Midterm Exam	15
Final Exam	20
Quizzes	10
Final Project	20
Total	**100**

Note: There may also be opportunities for bonus points; these will be discussed in class.

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

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

Interaction with Instructor Statement

Use email and office hours as presented under instructor information. In addition, the instructor will provide mobile contact information.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

As described above, student attendance and participation are required for this class.

The syllabus/schedule are subject to change

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

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

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

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/

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

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.

Department or Accrediting Agency Required Content

COURSE OUTLINE / CALENDAR

Week	Days	Lecture / Topic	Notes
1	Jan ~~10~~, 12, 14	LW 1: Introduction to Probability & Statistics	Jan 13 is 1st class
2	Jan 17, 19, 21	LW 2: MATLAB & statistical analysis	
3	Jan 24, 28, 28	LW 3: Basic probability	
4	Jan/Feb 31, 2, 4	LW 4: Probability and combinatorics	
5	Feb 7, 9, 11	LW 5: Random variables & probability distributions	
6	Feb 14, 16, 18	LW 6: Random variables & probability distributions	
7	Feb 21, 23, 25	LW 7: Mathematical expectation	
8	Feb/Mar 28, 2, 4	LW 8: Curve fitting, regression, correlation	
9	Mar 7, 9, 11	LW 9: Bayes Theorem and applications	Midterm Exam
10	Mar ~~14, 16, 18~~		Spring break
11	Mar 21, 23, 25	LW 10: Frequency domain analysis	Start projects
12	Mar/Apr 28, 30, 1	LW 11: Sampling theory	
13	Apr 4, 6, 8	LW 12: Estimation theory	
14	Apr 11, 13, 15	LW 13: Hypothesis testing	
15	Apr 18, 20, 22	LW 14: Hypothesis testing	
16	Apr 25, 27, 29	LW 15: Review	
17	May 3, ~~4, 6~~	Final Project Presentations: 3 May	May 4,5,6 study
18	Finals		Final

Notes:

1. Dates are subject to change
2. MATLAB skills will be taught and developed throughout the semester

The syllabus/schedule are subject to change