Section Information: MATH 453

Course Name: Essentials of Statistics

Section Instructor: Dr. Thomas R. Boucher

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Office: Online by appointment

Communication Response Time: within 24 hours during the workweek.

Course Description:

An introduction to statistics covering both descriptive and inferential statistics. Among the topics are numerical and graphical summaries for one and two variables, linear regression and correlation, confidence intervals and tests concerning means and proportions. A standard statistical software package is used throughout the course. The emphasis is on applying, interpreting, and explaining statistical methods.

Student Learning Outcomes:

Upon successful completion of this course, students will:

1 Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2 Recognize, examine and interpret the basic principles of describing and presenting data.
3 Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4 Explain the role of probability in statistics.
5 Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6 Describe and compute confidence intervals.
7 Solve linear regression and correlation problems.
8 Perform hypothesis testing using statistical methods

Introduction:

This syllabus details the rules and procedures by which this course is to be conducted. You are responsible for reading this syllabus and knowing the contents - enrollment in this course constitutes an acknowledgment of this responsibility and

implied consent to these rules and procedures. This course will be available online beginning at 8am on Monday, July 11th, 2022. **All work is due by the end of the course: 5pm on Thursday, August 11th 2022.** The course is self-paced within these deadlines.

Coursework is divided into 13 Modules. Each Module covers a topic and contains an online HW quiz, and often an activity which you will complete and upload for grading.

There are 3 exams and a cumulative final exam. These are in the form of extended online quizzes similar to the HW quizzes.

Topics Covered:

Module #1 - Introduction and Getting Started

Module #2 - Sampling and Surveys

Module #3 - Observational Studies and Experimental Design

Module #4 - Graphical and Numeric Summaries of Data

Exam #1

Module #5 - Discrete Probability

Module #6 - Continuous Probability and Density Curves, Normal Distributions

Module #7 - Sampling Distributions/Sampling Distribution of the Sample Mean

Module #8 - Confidence Intervals for Means and Proportions

Exam #2

Module #9 - Hypothesis Tests for One Population Mean

Module #10 - Inference for Two Population Means

Module #11 - One-Way ANOVA

Module #12 - Pearson's Chi-Square Test

Module #13 – Scatterplots and Correlation/Simple Linear Regression

Exam #3

Final Exam

Virtual Office Hours, Help, and Contact Info: Communication and support are crucial in an online course and so...My office hours are **by appointment** as I have found students do not take advantage of regularly scheduled hours. I can be available in the course Zoom meeting or there are various applications that will allow us to meet virtually. I will be checking my email regularly. I will be sending emails and posting announcements when I need to communicate with all of you. **Check your email regularly.**

Grading:

The course letter grade is based on the standard 100 point scale:

- 90-100 = "A"
- 80-89 = "B"
- 70-79 = "C"
- 60-69 = "D"
- < 60 = "F"

Your grade will be based on the following:

- Quizzes (15 total): 15%
- Activities (15 total): 15%
- Exams: 15% each (3 exams)
- Final Exam (cumulative): 25%

Quizzes, activities, and exams will be assigned as you progress through the course. You will complete and submit each quiz through the D2L quizzes utility. Activities will be assigned that are beyond what is in the homework. You may complete these in a Word document and upload it. Instructions will be given when these activities are assigned.

Exams will be administered online through the D2L quizzes utility. Exams are intended to be closed book and so they are timed to last 60 minutes. To help you prepare for the exams there are practice exams with solutions in the "Practice Exams" folder. You have only ONE ATTEMPT at the exams, so be sure that you are ready and have time to complete the entire exam before you begin. You will not be able to pause the exam. You will receive your grade upon submission of the exam and this grade will be visible in the Gradebook. You will also be able to review your exam.

Feedback:

You will receive your quiz or exam grade upon submission of the quiz/exam and this grade will be visible in the Gradebook as your grade for the assignment. Activities will be graded and returned to you, with solutions and my comments, within one week, usually much sooner.

StatCrunch:

We will use the statistical software package StatCrunch (http://statcrunch.com/), a web-based statistical software package which requires only internet access and a compatible browser to run. Thus, it will run equally well no matter which operating system you use. A 6-month license can be purchased for $14.99 at https://www.statcrunch.com/register/student. More instructions will be given in the first Module, and instructions for using StatCrunch will be given in screencasts as you proceed through the course. If you have technical issues with StatCrunch, I cannot help you with these. You will find support at http://www.statcrunch.com/support/student-support.php, including help docs, videos, examples, FAQs, and the student telephone support 800-677-6337, 12pm–8pm ET, M-F.

I can (and will) help you with using StatCrunch to perform statistical analyses of data, usually in the form of pre-recorded screencasts.

Text:

There is no required text. I will supply you with my notes which should be sufficient - these notes are yours, be sure to save copies for your personal use. If you would like to purchase a text, there are many fine ones available and I can recommend one for you.

D2L Brightspace: The course will be presented with the D2L Brightspace learning management system. Note the following:

- Ensure that your browser has JavaScript and Cookies enabled.
- For desktop systems, you must have Adobe Flash Player 10.1 or greater, available for free at http://get.adobe.com/flashplayer/

- The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

Technical Support:

- **D2L Access and Log in Information:** This course will be facilitated using D2L, the learning management system used by Texas A&M University-Commerce. To get started with the course, go to: http://www.tamuc.edu/myleo.aspx. You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamuc.edu.). Note the following:

- **TAMU-Commerce IT Help Desk:** If you need technical support with your computer, your account, or other resources under the purview of TAMUC, contact the TAMU-Commerce IT Help Desk at 903-468-6000 or helpdesk@tamuc.edu. You will also find answers to frequently asked questions concerning online courses at http://www.tamuc.edu/academics/onlineCourses/faqs.aspx
- **StatCrunch Help:** If you need technical support with StatCrunch you will find support at http://www.statcrunch.com/support/student-support.php, including help docs, videos, examples, FAQs, and the student telephone support 800-677-6337, 12pm–8pm ET, M-F.
- **myLeo Support:** Your myLeo email address is required to send and receive all student correspondence. Please email helpdesk@tamuc.edu or call us at 903-468- 6000 with any questions about setting up your myLeo email account. You may also access information at https://leo.tamuc.edu.
- **Learner Support:**
  - Math Skills Center - Free tutoring! The Math Skills Center in Binnion 328 will be open M/W 8am – 8pm; T/R 8am – 6pm; F 8am – noon.
  - One Stop Shop- http://www.tamuc.edu/admissions/onestopshop/ - created to serve you by attempting to provide as many resources as possible in one location.
  - Academic Success Center- http://www.tamuc.edu/campusLife/campusServices/academicSuccess Center/ - focused on providing academic resources to help you achieve academic success.

Technical Requirements:

Students must be able to create, read and upload word processed or spreadsheet created assignments which may be opened with Microsoft Office 2010. In order to access course content, students using Windows operating systems must be able to access the Web using Internet Explorer version 7.0 or higher, Firefox or Chrome for Windows. Students using Apple Macintosh operating systems may access the Web using either Safari or Firefox, however I have heard of problems using Safari. They must also allow their browser to accept "cookies" and allow "pop-ups".

StatCrunch requires a minimum version of Java Runtime Environment (JRE). If you need a Java update, go to www.java.com for a free download. Requirements beyond this vary depending on the Internet Service Provider and firewalls or security on the computer or network the student is using. These circumstances are in the student's control. Failure to meet technological requirements is not grounds for late or missed assignments.

Students with Disabilities:

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
Gee Library
Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: StudentDisabilityServices@tamuc.edu

Accessibility:

Texas A&M-Commerce University is committed to making every possible effort to ensure all electronic and information technology developed, procured, maintained, or used is accessible to individuals with disabilities. For more information visit the Center for Accessibility

http://www.tamuc.edu/campuslife/campusservices/CITESupportCenter/accessibility/default.aspx

or contact

Lydia Harkey, EIR Accessibility Officer

Lydia.Harkey@tamuc.edu

903-468-3029

Pearson's statement on accessibility for their products (including StatCrunch) can be found at

https://www.pearsonmylabandmastering.com/northamerica/mystatlab/accessibility

Campus Concealed Carry:

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 (http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProc edures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf) and/or consult your event organizer). 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.

Student Conduct:

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See Code of Student Conduct from Student Guide Handbook). Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: http://www.albion.com/netiquette/corerules.html

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.