Section Information: MATH 453 01W
Course Name: Essentials of Statistics
Section Instructor: Dr. Thomas R. Boucher, Assistant Professor
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Office: BIN 310, MTWR 10 am - 12 noon

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 Tuesday, January 17th, 2017 and will cease to be available at 5pm on Friday, May 5th, 2017. There are 15

topics + 3 exams and the final. The course is self-paced within these time constraints. You can work at your own pace, according to your own schedule. Grades will be determined based on the work submitted during this period. No work will be accepted after 5pm on Friday, May 5th, 2017.

Coursework is divided into 15 modules, which I will be releasing as we go. Each module covers a topic and contains an online HW quiz, and often an activity which you will complete and upload via the "DropBox" in Pearson LearningStudio.

Office Hours, Help, and Contact Info:

Communication and support are crucial in an online course and so...
You will be able to reach me in my office MTWR 9 am – 11am.
I will also be available by appointment. You can come by my office if you are on campus, we can speak by phone, or there are various applications like Skype, Adobe Connect, or Google+ that will allow us to meet virtually. I will be checking my email regularly. Expect a response to an email within 24 hours, usually much sooner. I will monitor the 'Virtual Office' threaded discussions tool linked to under 'Course Home'. You will be able to create and edit these discussions so that you can perhaps help each other if I am not available, though I will monitor these. I will be sending emails and posting announcements when I need to communicate with all of you. Check your email regularly.

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Please use these tools to remain in contact with me. If you run into any problems, contact me and I will either help you myself or direct you to someone who can help you. The worst thing you can do is blow off problems until the end of the course.
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Technical Support:

- **Pearson LearningStudio Access and Log in Information:** This course will be facilitated using Pearson LearningStudio, 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. It is strongly recommended that you perform a "Browser Test" prior to the start of your course. To launch a browser test, login to Pearson LearningStudio, click on the 'myCourses' tab, and then select the "Browser Test" link under Support Services.

- **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.
- **LearningStudio (Pearson LearningStudio) Technical Concerns:** Please contact the LearningStudio HelpDesk, available 24 hours a day, seven days a week by calling (toll-free) 1-866-656-5511 or 720-931-3847 (direct), or through the Online Chat by clicking on the "Tech Support" tab within your LearningStudio course.
- **Accessing Help from within Your Course:** Click on the 'Tech Support' icon on the upper left side of the screen inside the course. You will then be able to get assistance via online chat, email or by phone by calling the Help Desk number.
- **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/academicSuccessCenter/ - focused on providing academic resources to help you achieve academic success.

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 Modules. You will complete and submit each quiz through the Pearson LearningStudio exams utility. The homework quizzes are REPEATABLE as often as you like. The highest grade over the multiple attempts will be your grade for the homework.

Activities will be assigned that are beyond what is in the homework. You may complete these in a Word document and submit it using the Dropbox utility. Instructions will be given when these activities are assigned.

Exams will be administered online through Pearson LearningStudio. Exams are intended to be closed book and so they are timed. 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.

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 $13.75. There is also a beta version of StatCrunch for mobile devices available at

http://www.statcrunch.com/mobile/. You will need to subscribe before you can access this.

More instructions will be given in the first Module, and instructions for using StatCrunch will be given in screencasts as you proceed through the modules. 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.

Other Software:

My screencasts will require the Adobe Flash Player to view, available for free at http://get.adobe.com/flashplayer/

The screencasts can be downloaded and viewed standalone or can be viewed in your internet browser if the Flash Player plugin is enabled. To do so:

Chrome/Firefox/IE: http://www.thewindowsclub.com/enable-adobe-flash-player

Safari: https://helpx.adobe.com/flash-player/kb/enabling-flash-player-safari.html

Your browser may already have the Flash Player enabled; click on the link for the screencast and see if it plays.

We will use Microsoft Office formats (Word, PowerPoint, Excel), Adobe Reader (free - to view .pdf files), and Pearson LearningStudio (obviously!) so that you will need internet access and a suitable browser. I am currently using Chrome 52.0.2743.116 m and have had no trouble. If you have questions about browser compatibility, call the IT Help Desk. See also "Technical Requirements" below. There are also Mac versions of Office and Reader, so you should be OK.

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.

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.

Topics Covered:

Module #1 - Introduction and Getting Started/What is Statistics? What is Data? Intro to StatCrunch.

Module #2 - Sampling and Surveys,

Module #3 - Observational Studies and Experimental Design

Module #4 - Graphical and numeric summaries of data

Exam #1

Module #5 - Scatterplots and Correlation/Simple Linear Regression

Module #6 - Discrete Probability – axioms, properties, combinatorics

Module #7 - Discrete Probability – expectation and variance, conditional probability, Bayes' Rule, independence

Exam #2

Module #8 - Continuous Probability and Density Curves/Normal Distributions

Module #9 - Sampling Distributions/Sampling Distribution of the Sample Mean

Module #10 - Confidence Intervals for Means and Proportions

Module #11 - Hypothesis Tests for One Population Mean

Exam #3

Module #12 - Inference for Two Population Means

Module #13 - Inference for Population Proportions

Module #14 - One-Way ANOVA

Module #15 - Pearson's Chi-Squared Tests

Final Exam