

Section Information: MATH 453

Course Name : Essentials of Statistics

Section Instructor: Dr. Thomas R. Boucher

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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.

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 7th, 2014 and will cease to be available at 5pm on Thursday, August 7th, 2014. 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 Thursday, August 7th, 2014.

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 an activity which you will complete and upload via the "DropBox".

Virtual Office Hours, Help, and Contact Info:

Communication and support are crucial in an online course and so...

I will not hold regular virtual office hours since I have found that students can't take advantage of them due to

their varying schedules.

I will be available by appointment. 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.

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.

Free tutoring! The Math Skills Center in Binnion 328 will be open Mondays through Thursdays 9am-4pm.

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.

Technical Support:

If you need technical support, contact the TAMU-Commerce IT Help Desk at 903-468-6000 or helpdesk@tamuc.edu.

Grading:

Your grade will be based on the following:

Homework: 20%

Activities: 20%

Midterm Exam 30%

Final Exam (cumulative): 30%

Homework, activities, and exams will be assigned as you progress through the Modules. You will complete and submit a quiz through the eCollege exams utility. Completion and submission of the quiz constitutes completion and submission of the homework; I do not need anything else from you. You will receive your grade upon submission of the quiz and this grade will be visible in the Gradebook as your grade for the assignment. 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 eCollege. 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.

Software:

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 \$13.20. 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.

Other Software:

We will use Microsoft Office formats (Word, PowerPoint, Excel), Adobe Reader (free - to view .pdf files), and eCollege (obviously!) so that you will need internet access and a suitable browser. Of course, you will need to use an internet browser. I am currently using Chrome 26.0.1410.64 m and have had no trouble. If you have questions about browser compatibility, call the IT Help Desk. You will need the

Adobe Flash Player (free!) to view the videos. 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.

Contact the TAMU-Commerce IT Help Desk at 903-468-6000 or helpdesk@tamuc.edu as soon as a problem that could hinder your ability to participate in class is noticed.

Topics Covered:

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

Topic #2 - Sampling and Surveys,

Topic #3 - Observational Studies and Experimental Design

Topic #4 - Graphical and numeric summaries of data

Exam #1

Topic #5 - Scatterplots and Correlation/Simple Linear Regression

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

Topic #7 - Discrete Probability – expectation and variance, conditional probability,

Bayes' Rule, independence

Exam #2

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

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

Topic #10 - Confidence Intervals for Means and Proportions

Topic #11 - Hypothesis Tests for One Population Mean

Exam #3

Topic #12 - Inference for Two Population Means

Topic #13 - Inference for Population Proportions

Topic #14 - One-Way ANOVA

Topic #15 - Pearson's Chi-Squared Tests

Final Exam