University of Connecticut

Introduction to Statistics I (STAT 1000Q)

Winter Intersession 2020 (12/26/2019 - 01/17/2020)

Syllabus for Sec Z20, Class Number 1024

Basic Information about the Course

Course Title: Introduction to Statistics I (STAT 1000Q)
Credits: Four (4)
Recommended Preparation: MATH 1011 or equivalent
Instructor: Dr. Suman Majumdar, WebEx Personal Room, (203)286-5631
TA: Ms. Zhe Wang, WebEx Personal Room, (860)990-8282

- **While Dr. Majumdar is the Instructor of Record and developed the course, and Ms. Wang is nominally the Teaching Assistant, this is going to be more like a team taught course.**

- **E-mail is the best way to reach us.** It is extremely important that both of us are copied on any e-mail that you may send. To make that work, all you have to do is click on the hyperlink in the first sentence to initiate a conversation and remember to use the "Reply All" feature while responding to an e-mail. If you adhere to this protocol of keeping both of us in the loop, you can expect a very quick response.

- **If your query is time sensitive, please don't hesitate to call us**. Dr. Majumdar will be traveling during the term and will be somewhat limited in his ability to take calls, but he will be checking his voicemail very frequently. If you cannot reach Ms. Wang, please leave her a voicemail, and then call Dr. Majumdar (and leave him a voicemail). If you leave us a voicemail, we'll get back to you as soon as possible.

- **During the term, we plan to hold 55 virtual office hours using WebEx**. Please review the office hours schedule carefully and make sure that during any 24 hour period you are able to make it to one of the office hours should the need arise.

- Click here for details of HuskyCT technical support provided by UConn eCampus.
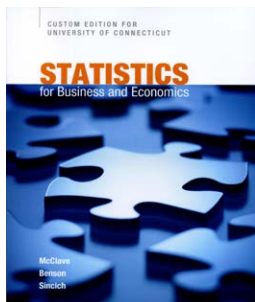
Course Objectives

By the end of the course, you should be able to:

1. Create and read graphs, charts, and tables for classifying, summarizing, and visualizing data.

2. Calculate and interpret descriptive statistical measures including: mean, median, mode, standard deviation, range, percentile, interquartile range, and standardized score.

3. Turn raw data into usable information.

4. Solve elementary probability problems and use random variables for modeling population features.

5. Do calculations involved in the use of inferential statistics, including point and interval estimation and hypothesis testing, and interpret the results of these calculations.

6. Build Regression models for studying relationships between quantitative variables.

Texts for the Course

You can buy both the textbook and the workbook at any [UConn Bookstore](#), by selecting Storrs as Campus. You can rent the textbook [online](#) to lower your cost.
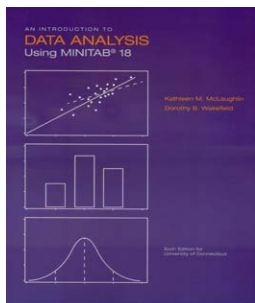
STATISTICS for Business and Economics — McClave, Benson, Sincich	*Required Textbook: STATISTICS for Business and Economics*, **UCONN Custom Edition** By James T. McClave, P. George Benson and Terry Sincich Pearson Education, Inc. ISBN-13: 978-1-323-75150-3 **Taken from:** *Statistics for Business and Economics, 13th Edition* ISBN-13: 978-0-134-50659-3
AN INTRODUCTION TO DATA ANALYSIS Using MINITAB 18 — Kathleen M. McLaughlin, Dorothy B. Wakefield	*Recommended Workbook: An Introduction to DATA ANALYSIS Using Minitab 18*, **6$^{\text{th}}$ Edition for UCONN** By Kathleen M. McLaughlin and Dorothy B. Wakefield Pearson Education, Inc. ISBN-13: 978-1-323-92300-9

Course Description

The course is developed around Chapters 1-8 and 11 of the Textbook. Please note that these 9 chapters span 561 pages and it is impossible to cover these pages verbatim in one semester. That, and other pedagogical considerations, cause us to substantially reorganize the content into the 13 modules described broadly below. It is important for you to note how each module relates to the Chapters in the Textbook and the Workbook.

Module 1 - The Science of Statistics This module corresponds very closely to Chapter 1 of the Textbook.

Module 2 - Methods for Describing Data This module is developed around Chapter 2 of the Textbook and Chapters 1-3 of the Workbook, but the Module notes contain additional material.

Module 3 - Probability This module corresponds to Chapter 3 of the Textbook, but again the Module notes contain additional material.

Module 4 - Random Variables and Probability Distributions This module is developed around Chapter 4 of the Textbook. The Module notes indicate how to use the Textbook. Chapters 5 and 6 of the Workbook play a pivotal role in this module.

Module 5 - Sampling Distributions This module is developed around Chapter 5 of the Textbook (which should be read in conjunction with the Module notes). It contains considerable amount of additional material and makes substantial use of Chapter 7 of the Workbook.

Module 6 - Introduction to Estimation with Confidence Intervals This module makes no direct use of the Textbook or the Workbook.

Module 7 - Introduction to Hypotheses Testing This module, like Module 6, makes no direct use of the Textbook or the Workbook.

Module 8 - The One Sample Problem This module is related to Sections 6.1-3 and 7.1-5 of the Textbook, but our pedagogy is radically different. We believe separating what the Textbook covers in Chapters 6 and 7 impedes the process of learning. We de-emphasize the formulas for calculating various statistical estimators - using Minitab (Chapters 8 and 9 of the Workbook) is a much more efficient process.

Module 9 - The One Proportion Problem This module is related to Sections 6.4 and 7.6 of the Textbook, but pedagogical considerations outlined above cause us to develop it around Chapters 8 and 9 of the Workbook.

Module 10 - The Paired Difference Experiment Problem The Textbook deals with this material in Section 8.3, but we are going to de-emphasize the formulas again and develop it around Chapter 10 of the Workbook.

Module 11 - The Two Sample Problem The Textbook deals with this material in Section 8.2, but continuing with the approach of using Minitab to do the numerical work, we are going to develop the module around Chapter 10 of the Workbook.

Module 12 - The Two Proportion Problem The Textbook deals with this material in Section 8.4. Again, we are going to shun formulas and use Minitab, and we'll post material that will illustrate how to handle this problem using Minitab.

Module 13 - Relationships Between Quantitative Variables, Correlation and Regression This module deals with what is covered in Chapter 11 of the Textbook, but we make very little use of the Textbook. We have a set of lecture notes that we use along with Chapter 11 of the Workbook to deliver the content.

Tools (Hardware and Software) required for the Course

A fully functional computer running on the Windows or the Mac OS is **required**. Using a computer running on the Linux or the Android OS to complete the coursework is **strongly discouraged**. A Scientific / Graphing Calculator is **required**. A microphone and a webcam are **recommended** for participating in WebEx office hours.

Click here to download the required plug-in **Acrobat Reader** to your computer. Your computer should be able to play this video. If you are using a Mac, the video may not play if the link opens in Safari. In that case, open Chrome on your mac and copy the link from the address bar in Safari to the address bar in Chrome. If you cannot play the video on your computer, please let us know.

You will need Microsoft WORD to work on the Assignments. If you do not have Microsoft WORD installed on your computer, you can get it (and other software included in the Microsoft Office Suite) here. Please install Microsoft WORD on your computer. **Assignments submitted using any other file format will not be graded**.

You will be using the statistical software Minitab extensively in this course. Minitab released its latest version, Minitab 19, last summer. The previous version, Minitab 18, was not supported on the Mac OS and Mac users had to use the UConn AnyWare Desktop to gain access to Minitab. Minitab 19 is supported on the Mac OS (version 10.14 or higher), though some of the functionalities of the Windows version are not yet available on the Mac Version. You can download Minitab 19 here and the installation instructions here.

Unfortunately, our Minitab Workbook has not yet been updated to be fully compatible with Minitab 19. You can broadly use the Workbook to navigate your way through Minitab 19, but there will be instances when the steps outlined in the Workbook will not apply to Minitab 19. Minitab 18 is still available on the UConn AnyWare Desktop and you may decide to bypass Minitab 19 altogether, but there are definite advantages to having Minitab installed on your computer. If the UConn AnyWare Desktop link does not work for you, connect to the UCONN VPN and try again. If you run into any problem with the UConn AnyWare Desktop, please report it to helpcenter@uconn.edu or call (860)486-4357 during normal business hours. **It is extremely important that you determine how you are going to access Minitab well ahead of time**.

Course Policy on Technology Related Issues

While we will try to help you resolve any technology related issues you may encounter, you are ultimately responsible for ensuring that your computer and internet connection are equipped to deal with what this online course requires; in particular, **we cannot let you make-up an assessment because of a technology related issue at your end**. Since we are not specialists in information technology, for many of your issues our role will be confined to putting you in touch with appropriate support personnel within the University. Since we have no control over how quickly your issue will be addressed, please bring your concerns to our attention as soon as they surface.

Computer Assignments

There will be **5 computer assignments**, for a total of **100 points**. Collaboration among students on these assignments is *strictly* prohibited. Please review the Assignment Details document for more information.

Every assignment will have a **deadline**, followed initially by an **extended deadline** (when it becomes unavailable) and subsequently by an **über extended deadline** (coinciding with the release of the solution to the assignment). Please note that an assignment submitted after its **deadline** is considered late and may not be graded for full credit; *no matter what*, **a submission of an assignment will not be accepted once its solution is released**.

The Course Menu on the left side of the Home Page contains the link to a folder titled **Assignments**. Every assignment and its solution will be placed inside this folder. Click on the **link for an assignment** (*different from the* link for an assignment file) to access and submit it. You can attach the file you intend to submit as your assignment in that page.

Timed Quizzes

You will be quizzed on the material of each *Learning Module* **except 1, 6, and 7**, for a total of **60 points**. Please note that your total score on these quizzes is by far the larger component of what determines your course grade.

We will give you two quizzes on each module, Version A followed by Version B. Each of the two quizzes on a particular module will have the same number of questions and you will get the same amount of time to complete each of the two quizzes. The level of difficulty of the questions on the Version B quiz will be comparable to that of the questions on the Version A quiz, but you should not expect that any question would be repeated. We will post detailed solutions to the Version A quiz. To calculate your quiz score for a module, we will take the higher of your Version A and Version B scores. Please review the Quiz Details document for more information.

The Course Menu on the left side of the Home Page contains the link to a folder titled **Quizzes**. All quizzes and the solutions to the A quizzes will be placed inside this folder. Always read the description carefully before starting a quiz.

By taking these quizzes, you agree to abide by the **Honor Code**: *You will not seek help from anyone to complete the quizzes*. You are allowed to use any inanimate resource while completing the quizzes.

For each of you, we will calculate a **W**(weighted)-score, using the formula **W = C/5+4Q/3**, where **C and Q** stand for the total points you *score* on the computer assignments and the module *quizzes*, rounded up to the next whole number.

W-Score	Letter Grade	W-Score	Letter Grade	W-Score	Letter Grade
0-39	F	52-56	C-	73-80	B
40-43	D-	57-61	C	81-86	B+
44-47	D	62-66	C+	87-91	A-
48-51	D+	67-72	B-	92-100	A

Here is an Excel Template for calculating your **W-score**. Please note that depending on the **distribution** of the **W-score**, **we may *modify* the scale, i.e., *curve***, but only to make it more *lenient*. What that means is *your Letter Grade on a modified scale will **never** be lower than that on the scale above*.

Students with disabilities should contact us and the [Center for Students with Disabilities](#) as soon as possible, preferably right after enrolling in the course, in order for appropriate accommodations to be provided in a timely manner.

Course Operating Procedures

How to Approach this course (This is IMPORTANT!)

Because you are working in an isolated environment away from other course participants, i.e., other students in the course and us, as opposed to with them in a brick and mortar classroom, **the risk of falling behind is higher in an online course**. This problem is often compounded by a temptation to procrastinate, which is fueled by the asynchronous nature of learning in this format. That said, taking an online course can be a truly rewarding experience (above and beyond the convenience it provides) if you become engaged, follow the instructions to keep up with the assigned work, and communicate regularly with other course participants, including us.

Since we will be covering 14 weeks of material in 23 days, you will have to devote a substantial amount of time (on the average about 6 hours a day) to the course on each of these 23 days. The **[Course Schedule](#)** outlines how you should organize your course related activities over this period. Following the schedule will protect you against falling behind and let you learn with confidence what you need to. It will be very overwhelming (and ineffective) if you procrastinate and then try to make up for the lost time.

[Here](#) is the link to the Resources Page of The Academic Achievement Center of UConn.

Discussions

The **Discussion Board** in Husky CT provides a platform to *meet* other course participants and initiate a dialogue on any (obviously, course related) topic of interest. While posting to the **Discussion Board** please write complete sentences and check for spelling and grammar. We strongly encourage you to regularly use the **Discussion Board**.

Please introduce yourself to the rest of the class by submitting a post to **the Discussion Board on Introductions.**

Academic Misconduct

Academic misconduct in any form is in violation of [The Student Code](#), which is **incorporated into this document by reference**, and will not be tolerated. This includes, but is not limited to, copying or sharing answers on quizzess or assignments, plagiarism, and having someone else do your academic work. Depending on the act, a student can receive a score of 0 on the quiz/assignment, F grade for the course, or can be suspended or expelled. In this context, let us emphasize that substantially similar submissions of an assignment from different students will be treated as an instance of academic misconduct by the students involved.

We take plagiarism seriously. If you're not sure how to recognize and avoid plagiarism, click [here](#).

Your Responsibility

For a variety of reasons, we may have to modify the policies and procedures outlined in this document, as well as the various deadlines mentioned in the [Assignment Details](#) and the [Quiz Details](#). Such modifications, if any, will be announced on Husky CT. It is **your responsibility** to keep track of these announcements.