University of Connecticut

Introduction to Statistics I

STAT 1000Q

Syllabus - May 2013

Basic Information about the Course

Course Title: Introduction to Statistics I (STAT 1000Q)
Credits: 4 credits
Recommended Preparation: MATH 1010 or equivalent
Instructor: Dr. Suman Majumdar (suman.majumdar@uconn.edu)
TA: Ms. Valerie Pare (valerie.pare@uconn.edu)

Copyright Compliance

This course is developed by Dr. Suman Majumdar, Associate Professor of Statistics at the University of Connecticut. Any content not created by the developer is used with permission of the copyright holder.

Contact Info:

- **HuskyCT e-mail is the best way to reach us.** To e-mail course related questions please use only the Messages tool in the course. You can expect a response in less than 12 hours.

- If your query is time sensitive, please don't hesitate to call Suman at (203)987-5286 or Valerie at (860)798-1315. If you leave us a voicemail, we'll get back to you as soon as possible.

- For HuskyCT technical support, contact the Digital Learning Center (DLC) at (860)486-1187.

Try Out the FYE Ask Ali Study Strategies

Click [Ask Ali Videos](#) to listen to Ali, a very successful student at UConn, share study strategies that have worked well for her. To view the videos you will be asked to enter your UConn Net ID (the same username and password you used to log into this course).

[UConn Connects and the First Year Programs](#) offer an array of courses, a network for personal support, interactive online resources, and unique living/learning experiences to help students at the University of Connecticut achieve success from the start.
Tools and Texts required for the Course

Click [here](#) to download the required plug-in **Acrobat Reader** to your computer. You may also have to download a plug-in to play MP4 Videos.

You will be required to use **Microsoft WORD 2010** for Windows; if it is not installed on your computer, you can use it on [the UConn vPC](#). To use the UConn vPC install the VMWare View Client on your computer.

This course makes extensive use of the statistical software Minitab (for which the Workbook listed below serves as a manual) and it is extremely important that you figure out a way of accessing Minitab before the start of the semester. Minitab is available on [the UConn vPC](#). Note that Minitab is not supported on the Mac platform.

*The vPC may be rather slow during periods of peak usage.* If you run into any problem with the vPC, please report it to [feedback@vpc.uconn.edu](mailto:feedback@vpc.uconn.edu).

You can buy both the textbook and the workbook at any UConn Co-Op.

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**Textbook: A First Course In Business Statistics, 10th Edition**

By James T. McClave, P. George Benson and Terry Sincich

Prentice Hall College Division, Publisher

**Workbook: An Introduction to Data Analysis Using Minitab 16**

By Kathleen M. McLaughlin and Dorothy B. Wakefield

Pearson / Prentice Hall Publishers

You will need a scientific calculator.
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.

Course Description

The course is developed around Chapters 1-7 and 10 of the Textbook, Statistics for Business and Economics, 10th edition, by James T. McClave, P. George Benson and Terry Sincich. Please note that these 8 chapters span 549 pages and it is impossible to cover these pages verbatim in one semester. That, and other pedagogical considerations, cause me to substantially reorganize the content into the 13 modules described broadly in the next page. It is important for you to note how each module relates to the Chapters in the Textbook and the Workbook, An Introduction to Data Analysis using Minitab 16, by Kathleen McLaughlin and Dorothy Wakefield.
**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 contains additional material that is covered neither by the Textbook nor by the Workbook.

**Module 3 - Probability**  This module corresponds to Chapter 3 of the Textbook, but there is some divergence between the content of the module and the Textbook Chapter. You should follow the module plan of study carefully and use the Textbook as indicated.

**Module 4 - Random Variables and Probability Distributions**  This module is developed around Chapter 4 of the Textbook. We do most of the numerical work using Minitab (as opposed to the Textbook, which uses formulas and calculators). As such, Chapters 5 and 6 of the Workbook play a pivotal role in this module.

**Module 5 - Sampling Distributions**  This module is nominally related to the last two sections of Chapter 4 of the Textbook. It contains additional material that is covered neither by the Textbook nor by the Workbook. It does make 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 nominally related to Sections 5.1-3 and Sections 6.1-4 of the Textbook, but my pedagogy is radically different from that of the Textbook. I think what the Textbook covers in Chapters 5 and 6 are joined at the hip and separating them impedes the process of learning. I also de-emphasize the many formulas for calculating the values of the various statistical estimators - using Minitab to do the same jobs is a much more efficient process. Chapters 8 and 9 of the Workbook play a pivotal role here.

**Module 9 - The One Proportion Problem**  This module is nominally related to Section 5.4 and Section 6.5 of the Textbook, but pedagogical considerations (similar to the ones shaping my handling of the content of Module 8) cause me 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 7.3, 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 7.2, but continuing with the approach of de-emphasizing formulas and 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 7.4, and the Workbook does not deal with this material at all. Again, we are going to shun formulas and use Minitab, and I'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 10 of the Textbook, but I make very little use of the Textbook. I have a set of lecture notes and use them along with Chapter 11 of the Workbook to deliver the content.
Computer Assignments

There will be 8 computer assignments, for a total of 150 points. Collaboration among students on these assignments is strictly prohibited.

Please review the Assignment Details document for more information. Every assignment and its solution will be placed inside a folder in the Learning Module it pertains to. Click on the link for an assignment to access and submit it. You can attach the file you intend to submit as your assignment in that page.

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.

Quizzes

There will be ten multiple-choice online quizzes, one for each Learning Module sans 1, 6, and 7, for a total of 60 points.

Please review the Quiz Details document for more information. Every quiz will be placed at the bottom of the page for the Learning Module it pertains to. Make it a habit to read the description of a quiz carefully before clicking on its link to access it.

By taking these quizzes, you agree to abide by the Honor Code: You will not seek help from anyone, nor will you use any course resource, including the Textbook, to complete the quizzes. Note that you are allowed to use your calculator and Minitab while taking the quizzes.

The solution to each and every quiz will be posted once the quiz closes. Where to find a quiz solution will be announced through HuskyCT once it is posted.

Proctored Exams

There will be two (closed book) proctored exams, the Midterm and the Final. The page that holds the Learning Modules will have a folder titled Exams, where the exams will be placed. Again, you should read the description of an exam carefully before clicking on its link to access it.

Please complete the survey before proceeding further, so that we know where you want to take the exams.

Each exam will consist of 30 multiple-choice questions, will be worth 30 points, and will be of 2 hours duration. You can use notes on both sides of two standard letter size, 8.5" by 11.5", sheets during each exam.

The Midterm Exam, encompassing Modules 1 through 5, is scheduled for 5/24/13, and the Final Exam, encompassing Modules 6 through 13, is scheduled for 5/31/13.

Due to the compressed nature of the May Term, it is extremely difficult to arrange make-up exams. As such, a make-up exam will be granted to an individual student only in case of a verifiable and extreme emergency. Please note that we cannot grant a make-up exam because of a schedule conflict. Further, it will not be possible to give a make-up exam at Stamford.
For each of you, I'll calculate a W(weighted)-score, using the formula \( W = \frac{C}{6} + \frac{Q}{3} + M + F \), where \( C, Q, M, \) and \( F \), stand for the points you score on the computer assignments, the quizzes, the Midterm, and the Final, respectively, rounded (up) to the next whole number. Your W-score will be converted into a Letter Grade using the scale below.

<table>
<thead>
<tr>
<th>W-Score</th>
<th>Letter Grade</th>
<th>W-Score</th>
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<th>W-Score</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-29</td>
<td>F</td>
<td>45-49</td>
<td>C-</td>
<td>70-79</td>
<td>B</td>
</tr>
<tr>
<td>30-34</td>
<td>D-</td>
<td>50-54</td>
<td>C</td>
<td>80-84</td>
<td>B+</td>
</tr>
<tr>
<td>35-39</td>
<td>D</td>
<td>55-62</td>
<td>C+</td>
<td>85-89</td>
<td>A-</td>
</tr>
<tr>
<td>40-44</td>
<td>D+</td>
<td>63-69</td>
<td>B-</td>
<td>90-105</td>
<td>A</td>
</tr>
</tbody>
</table>

I'll give you an Excel template for calculating your W-score.

Please note that depending on the distribution of the W-score, I may modify the scale, i.e., curve, 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.
How to Approach this course (This is IMPORTANT!)

Because you are working in an isolated environment away from other course participants, i.e., us and other students in the class, 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 facilitated by the asynchronous nature of learning in this format. That said, taking an online course is extremely convenient and can be a truly rewarding experience if you become engaged, follow the instructions to keep up with the assigned work, and communicate regularly with other course participants.

Please use the Messages tool in HuskyCT to privately communicate with other course participants.

The Discussion Board in HuskyCT is similar to the classroom as it 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. Please introduce yourself by submitting a post to the Discussion Board on Introductions. We strongly encourage you to regularly use the Discussion Board.

Since we will be covering 14 weeks of material over 19 days, you will have to devote a substantial amount of time (on the average about 7-8 hours a day) to the course on each of these 19 days. To help you succeed in this class, I have created a Course Schedule that outlines what you should do on each of these 19 days. 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.

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 tests or assignments, plagiarism, and having someone else do your academic work. Depending on the act, a student can receive an F grade on the test/assignment, F grade for the course, or can be suspended or expelled. In this context, let me emphasize that substantially similar submissions of an assignment from different students will be treated as an instance of academic misconduct by the students involved.

I take plagiarism seriously. If you're not sure how to recognize and avoid plagiarism, click here.

Your Responsibility

For a variety of reasons, I 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 through HuskyCT. It is your responsibility to keep track of these announcements.

Students with Disabilities

Student with disabilities should contact the Center for Students with Disabilities and us as soon as possible, in order for appropriate accommodations to be provided in a timely manner.

Acknowledgment

Please send us a Message using the Messages tool within the course and Suman's e-mail address shown above saying that you have thoroughly read this Syllabus.