UNIVERSITY OF LA VERNE

Course Syllabus

BUS270 - ONLINE
Quantitative and Statistical Analysis (3 units)
Fall, 2015
Online
Class location: Online

Instructor: Joel Greenman
Office Location: Online Email
Office Hours: Email Questions only
Email: jgreenman@laverne.edu
Course Session: 8/31/15 – 11/8/15 – 10 Weeks

The contents of this course syllabus are subject to change as the course progresses, as per the discretion of the course instructor. Students are responsible for any and all changes.

Course Textbook

Gerald Keller, *Statistics for Management and Economics*, 10th edition. Cengage Learning, 2014.
ISBN - **978-1285425450**.

Course Catalog Description

"Examines the application of selected topics from descriptive and inferential statistics to managerial decision-making. Includes regression analysis and model building, optimization and rates of change, and elements of financial mathematics."

PREREQUISITE: Basic knowledge and access to a computer spreadsheet such as Excel would be appropriate. Prior knowledge of statistics is not required.
While this syllabus will serve as a general guideline for this course, the instructor reserves the right to make any changes to its contents, such as exam dates, or its requirements as deemed necessary. Revisions to this Course Syllabus may be posted as the term progresses.

Course Description
This is an introductory course in the modern methods of data analysis. This course will provide students majoring in economics, business administration, management, accounting, finance, and other business-related fields with an overview of descriptive and inferential statistics. Topics covered include descriptive statistics, probability theory, binomial and normal distributions, estimations, hypothesis testing, and regression analysis.

Class Sessions:

Week 1: 8/31/15 – 9/6/15

Week 2: 9/7/15 – 9/13/15

Week 3: 9/14/15 – 9/20/15

Week 6: 10/5/15 – 10/11/15

Week 7: 10/12/15 – 10/18/15

Week 8: 10/19/15 – 10/25/15

Week 4: 9/21/15 – 9/27/15   **Week 9:   10/26/15 – 11/1/15**

Week 5: 9/28/15 – 10/4/15   **Week 10:   11/2/15 – 11/8/15**

Primary Topics to be covered & Course Overview:

1. **Week 1** - Introduction to Statistics: Graphical Statistical Techniques I & II. (Chapts. 1 – 3)
   - ➢ Instructor welcome to the course.
   - ➢ Course syllabus: Distribution and discussion.
   - ➢ Use of the online learning platform using **Blackboard**.
   - ➢ Presentation & demonstration of access to the publisher's textbook website.
   - ➢ Information on the use of MS Excel in this course and the loading and use of the MS **Excel statistical toolpak for MS Office 2010**.
   - ➢ Presentation & demonstration of access to MS Excel datasets using the Keller website.
   - ➢ (Optional) Presentation/demonstration of access & use of Keller's **Data Analysis Plus**.

2. **Week 2** - Descriptive Techniques: Measures of Central location/dispersion. (Chapt. 4)
3. **Week 3** - Data Collection & Sampling: (Chapt. 5) **Exam I(Chapts. 1 – 4)**
4. **Week 4** - Probability Concepts & Applications: (Chapt. 6).
5. **Week 5** - Random Variables/Probability Distributions: (Chapt. 7).
6. **Week 6** - Continuous Probability Distributions: (Chapt. 8).
7. **Week 7** - Test of Hypotheses: (Chapt. 11) **Exam II(Chapts. 5, 6, 7, 8)**
8. **Week 8** – Simple Linear Regression/Correlation: (Chapt. 16).
9. **Week 9** – Time Series Analysis & Forecasting(Chapt. 20).
10. **Week 10** – **Final Examination(Chapts. 11, 16, 20),** Review.

Course Goals, Objectives, and Outcomes

This is a learning-by-doing course. This means that you will learn the material through course lectures, homework, in-class discussions, and group activities. After completing this course, students will learn and apply a tremendous amount of statistical concepts and tools to business-related problems and decision-making that affects our daily lives.

Key learning objectives of this course are to:

1. Know the differences between descriptive and inferential statistics
2. Compute and explain the mean, variance and the standard deviation
3. Calculate probabilities and identify the characteristics of a probability distribution/Counting Methods.
4. Develop a knowledge and understanding of discrete probability distributions/binomial distribution.
5. Understand normal and standard normal distributions
6. Understand why a sample is a practical way to learn about a population
7. Know the central limit theorem and its application to finding probabilities
8. Define a hypothesis, test statistic, and p-value

9. Distinguish between one-tail and two-tailed test of hypothesis
10. Apply regression analysis to estimate and interpret the linear relationship between variables.
11. Understand the concepts and techniques related to the Time Series Analysis & Forecasting.

Course Requirements

The requirements for this course include two examinations and a final exam.

Grading weights are as follows:

Three (3) Examinations:	15% each
Homework:	15%
Term Project:	10%
Participation/DQ Responses:	10%
Final Examination:	20%

Examinations will most probably be multiple choice type questions that may include analyses of graphs and computing values and numbers, in addition to the concepts and terms. All exams are closed book and notes; you may use only a simple calculator (no cell phones, palm-pilots, smartphones, or any other electronic devices are allowed). There's no make-up exam!

An "F" grade may also be given for the course in cases of cheating or plagiarism.

The tentative final course grade scale will be:

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
% Range	94-100	90-93	87-89	84-86	80-83	77-79	74-76	70-73	67 - 69	64 - 66	0-63

A   Outstanding—superior knowledge and skill.
B   Above average—more than adequate knowledge and skill.
C   Average—basic knowledge and skill.
F   Failed—confusion, inability to recall knowledge and/or perform skills, or absence of knowledge and inability to perform skills.

Students are expected to take exams during the assigned class' hours. If a student misses an exam and has authorized document, then special arrangements can be made to make up the missed exam. However, **there will be no make up for missing examinations and the final examination.**

Drop Policy

If you decide to drop this course, YOU must take all required steps as outlined by the

Registrar in time period drops are permitted. It is your responsibility to drop the course on time to avoid getting an "F". Please DO NOT simply stop attending classes and expect to be automatically dropped by the instructor or the Registrar.

Expectations of Classroom Behavior

Disruptive behavior which is persistent or significantly interferes with classroom activities may be subject to disciplinary action. As a University of La Verne student, you are pledged to join the discourse of the academy with honesty of voice and integrity of scholarship and to show respect for staff, professors, and other students. See the University's Academic Rights and Responsibilities (http://sites.laverne.edu/academic-advising/academic-rights-and-responsibilities/).

Email Communication

I will frequently communicate with the entire class using campus email systems, so it is essential that you regularly check your laverne.edu email address or forward your La Verne account email to your preferred email address.

Homework

No late homework accepted.
Students are encouraged to discuss and work together on homework, but each individual student must submit his/her own homework. It is important that students dedicate adequate hours every week to practice, complete homework, and prepare for exams.

Final Examination

The final exam covers chapters 11, 16, 20.

Attendance and Participation

Attendance will be taken at the beginning of each class session. In order to learn the course material and earn a good grade, students must actively engage the course material through in-class lectures, participating in in-class learning activities, and asking questions to the instructor and other students in class. Thus, regular attendance and participation are integral to performing well in this course. Students are required to read assigned chapters, articles, and homework *before* each class. That is, all assigned materials must be read or completed before the date listed on the course schedule. Students are responsible for material covered or changes in assignments announced if they are absent from class.

Students are encouraged to attend all classes. Please provide bona fide reason(s) to the instructor for not being in class (e.g., illness, family emergency, doctor's note). Also notify the instructor

before class and explain reason(s) for not attending class.

In-class Exercises/Class Participation

During the semester, there will be numerous in-class assignments (e.g., individual and group discussions, in-class individual/group exercises, etc.). These assignments are intended to strengthen your learning experience, knowledge, and class participation. These exercises will count towards your final course grade.

Academic Integrity

Students must adhere to University of La Verne's Academic Honesty (http://sites.laverne.edu/academic-advising/files/2010/11/Section31.pdf). University of La Verne is a community dedicated to academic excellence. Dishonesty such as cheating, facilitating cheating, plagiarism, falsification of data, but not limited to, will be enforced in this course. Students are expected to report cases of academic dishonesty to the course instructor.

Incomplete Policy

Incompletes will be given in rare and exceptional instances, as determined by the instructor. If you foresee problems in finishing course materials – e.g., examinations and homework – please see the instructor ***immediately or as soon as possible*** to discuss grading options.

Disability Statement

Any student who feels he or she needs accommodation, based on the impact of a disability, should contact me privately to discuss your specific needs. Please contact the Services for Students with Disabilities Department (http://sites.laverne.edu/students-with-disabilities/) at (909) 593-3511, ext. 4441 and/or visit the department to coordinate reasonable accommodations for students with documented disabilities. They are located at 2147 "E" Street, La Verne, CA 91750.

Technology Use in this course:

In this course, the instructor will make reference to through in-class presentations and homework assignments and textbook references, the use of both scientific/business/graphical calculators and MS Excel. Students will be expected to gain competency with the usage of both calculators and MS Excel as a tool in doing the statistical analysis as presented in each topic of this course. Students are expected to have a working version of MS Office 2010 on their computer or other accessible computer, in order to use the Excel spreadsheet, data analysis tools in Excel and the graphical features of Excel.

Use of Scantron Forms:

As per the instructor's discretion, students may need to purchase a package of Scantron forms through the university bookstore. These scantron forms will be used for test taking purposes in relation to multiple choice tests. This may include the final exam. Students should assume that they will need to purchase these scantron forms 1 week prior to a scheduled course test. Scantron forms must have a minimum capacity of 100 entry lines.

Course Presentation Mediums:

This course will be presented onsite, at the designated time and place each week.

Students will also have access in this course to the online teaching platform known as **Blackboard**. Additional information in relation to this online component will be presented at the first class meeting including Blackboard access and logon information.

Using **Blackboard**, the instructor, at his discretion, may post additional learning materials such as class handouts relating to specific topics, and Powerpoint presentations. As per the discretion of the instructor, Blackboard may also be used to post course grades for items such as homework assignments, tests, etc. Students may also be able to use the discussion forum features of Blackboard as a forum where they can discuss course topics, problems, as well as communicate with the course instructor using the Blackboard email server.

Reading Assignments, Homework Assignments and Test Dates

Be sure to include a cover page on ALL homework assignments submitted in this course. The cover page must include the following:

- ❖ **Course Name.**
- ❖ **Your Name.**
- ❖ **Week number.**
- ❖ **Homework assignment chapters and assigned problems.**

Access to Data Sets in the Course textbook:

The majority of the text related assignment exercises in this course, will reference data sets that are formatted in MS Excel, Minitab, SPSS, SAS, JMP IN and ASCII. These data sets are referenced in many of the exercises in each chapter of the course textbook. Prevalent use of data in examples, exercises, and cases, in the course textbook, are highlighted by an accompanying data icon, which alerts students to go to Keller's website to access the data set.

Student Access to the Keller Website:

To access student textbook resources on the Keller website, go to www.cengagebrain.com and use the ISBN #9781285425450 to access the Data Analysis Plus add-in, 992 data sets, optional topics and 35 appendices.

Steps to Access the Keller Website:

1. Using your search engine such as Internet Explorer, Firefox, etc., enter the website address in the address bar as www.cengagebrain.com.
2. In the box titled, "Enter ISBN", enter the ISBN # for your textbook as 9781285425450.

3. You will be directed to a page titled, "Statistics for Management and Economics, 10th Edition".
4. Click on the "Free Materials" tab.
5. Click on the box titled, "Access Now".
6. Listed under "Book Resources", you will see the following:
   - ANES and GSS datasets.
   - Access to Data Analysis.
   - Plus.
   - Errata.
   - Excel Datasets.
   - Excel Workbooks.
   - GSS Codebooks.
   - Web Appendices.

Many of the assignment exercises in the course textbook are prefaced by a dataset icon, such as "Xr03-80". This is a reference to Excel data sets used in the assigned problems. These can be found by clicking on the above tab titled, "**Excel Datasets**".

7. Click on "**Excel Datasets**".
8. Click on, Download Now: 1285425456_407616.zip
9. Click on "Open" or "Save" for saving the dataset to your computer. You should define a

new folder on your computer for these downloaded files.
10. You should now see a file folder that contains the Excel datasets.
11. Click on the file folder.
12. Using Chapter 3 as an example, look for the file folder titled, "ch03 xlsx".
13. Click on "ch03 xlsx".
14. It now presents you with the associated Excel datasets for textbook problems. Simple as that!
15. Go to pg. 90 in your course textbook.
16. This is the chapter Exercise set for chapter 3.
17. Look at problem #3.80.
18. You will see the reference icon there for dataset Xr03-80.
19. You can locate that dataset for this problem by scrolling down on the Excel dataset list to Xr03-80, clicking on it, opening it and saving it to your computer.

Loading the Data Analysis ToolPak in MS Excel 2010:

The Analysis ToolPak is a Microsoft Office Excel add-in program that is available when you install Microsoft Office or Excel. You will be using this data analysis toolpak in this course.

To use the Analysis ToolPak in Excel, however, you need to load it first.

1. Click the **Microsoft Office Button**, and then click **Excel Options**.
2. Click **Add-Ins**, and then in the **Manage** box, select **Excel Add-ins**.
3. Click **Go**.
4. In the **Add-Ins available** box, select the **Analysis ToolPak** check box, and then click **OK**.
    1. **Tip**   If **Analysis ToolPak** is not listed in the **Add-Ins available** box, click **Browse** to locate it.
    2. If you get prompted that the Analysis ToolPak is not currently installed on your computer, click **Yes** to install it.
5. After you load the Analysis ToolPak, the **Data Analysis** command is available in the **Analysis** group on the **Data** tab.

Downloading Data Analysis Plus from the Publisher Website:

The publisher website for the Keller textbook, also has a downloadable version of statistical software titled, "Data Analysis Plus". This is also part of the free resource materials accessible to students and is accessible through www.cengagebrain.com, following the same steps as defined above. In the list of book resources, you will see "**Access to Data Analysis Plus**". By clicking on the link, you will be directed to the download page for this software. You will then choose the appropriate download for your computer and version of MS Excel. If there is an issue with this download onto your computer, your alternative is to install the statistical

toolpak that is already built into Excel, using the steps provided above in relation to how to install the MS Excel statistical toolpak.

Assignment Listing:

Weekly assignments are due on the last day of each week(Sunday at 11:59:59 PST.

<mark>All homework assignments in this course will be submitted through Blackboard using the provided weekly assignment link found in the "Content" area of the Blackboard course.</mark>

Week 1 – : 8/31/15 – 9/6/15

Read chapts. 1 – 3: Course Textbook. Pgs. 1 – 93.

> ➢ What is Statistics: Chapt 1.
> ➢ Graphical Descriptive Techniques I: Chapt. 2.
> ➢ Graphical Descriptive Techniques II: Chapt. 3.

Homework Assignment:

Chapt. 1 – pg. 9: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6.
Chapt. 2 – pg. 41 – 42: Chapter Exercises: 2.50, 2.51(Use an MS Excel spreadsheet to analyze this data and serve as the basis for the construction of a graphical display. Include the graphical display with your submitted assignment.)
Chapt. 3 – pg. 90 – 91. Chapter Exercises: 3.84, 3.88.

Week 2 – 9/7/15 – 9/13/15

Read chapt. 4: Course Textbook – Numerical Descriptive Techniques. Pgs. 94 – 157.

> ➢ Numerical Descriptive Techniques: Measures of Central location and Dispersion.Graphical Descriptive Techniques I.

Homework Assignment:

Chapt. 4 – pg. 153 – 156.

Chapter Exercises: 4.121, 4.129, 4.132.

Applications Problems

The Empirical Rule and Chebyshev's Theorem

1. A population data set of size N = 500 has mean μ = 5.2 and standard deviation σ = 1.1. Find the minimum number of observations in the data set that must lie:
    1. between 3 and 7.4;
    2. between 1.9 and 8.5.
2. A sample data set of size n = 128 has mean x⁻=2 and standard deviation s = 2. Find the minimum number of observations in the data set that must lie:
    1. between −2 and 6 (including −2 and 6);
    2. between −4 and 8 (including −4 and 8).
3. A sample data set of size n = 30 has mean x⁻=6 and standard deviation s = 2.
    1. What is the maximum proportion of observations in the data set that can lie outside the interval (2,10)?
    2. What can be said about the proportion of observations in the data set that are below 2?
    3. What can be said about the proportion of observations in the data set that are above 10?
    4. What can be said about the number of observations in the data set that are above 10?
4. A population data set has mean μ = 2 and standard deviation σ = 1.1.
    1. What is the maximum proportion of observations in the data set that can lie outside the interval (−1.3,5.3)?
    2. What can be said about the proportion of observations in the data set that are below −1.3?
    3. What can be said about the proportion of observations in the data set that are above 5.3?

Applications -

5. Scores on a final exam taken by 1,200 students have a bell-shaped distribution with mean 72 nd standard deviation 9.
    1. What is the median score on the exam?

2. About how many students scored between 63 and 81?
3. About how many students scored between 72 and 90?
4. About how many students scored below 54?

6………Lengths of fish caught by a commercial fishing boat have a bell-shaped distribution with mean 23 inches and standard deviation 1.5 inches.
   1. About what proportion of all fish caught are between 20 inches and 26 inches long?
   2. About what proportion of all fish caught are between 20 inches and 23 inches long?
   3. About how long is the longest fish caught (only a small fraction of a percent are longer)?

7. Hockey pucks used in professional hockey games must weigh between 5.5 and 6 ounces. If the weight of pucks manufactured by a particular process is bell-shaped, has mean 5.75 ounces and standard deviation 0.125 ounce, what proportion of the pucks will be usable in professional games?
8. Hockey pucks used in professional hockey games must weigh between 5.5 and 6 ounces. If the weight of pucks manufactured by a particular process is bell-shaped and has mean 5.75 ounces, how large can the standard deviation be if 99.7% of the pucks are to be usable in professional games?

9. Speeds of vehicles on a section of highway have a bell-shaped distribution with mean 60 mph and standard deviation 2.5 mph.

   a. If the speed limit is 55 mph, about what proportion of vehicles are speeding?
   b. What is the median speed for vehicles on this highway?
   c. What is the percentile rank of the speed 65 mph?
   d. What speed corresponds to the 16th percentile?

Week 3 – 9/14/15 – 9/20/15   Examination I(Chapts. 1 – 4)

Read chapt. 5: Course Textbook – Data Collection & Sampling. Pgs. 158 – 171.

➢ Data Collection & Sampling

Homework Assignment:

Chapter Exercises:

Pg. 162. Exercise 5.1, 5.2, 5.5.
Pg. 169: Exercise 5.13, 5.16.
Pg. 171: Exercise 5.19

Week 4 – 9/21/15 – 9/27/15

Read chapt. 6: Course Textbook – Probability: Pgs. 172 – 212.

Homework Assignment:

Chapt. 6 – pgs. 176 – 77: Exercises: 6.1, 6.2, 6.5, 6.8, 6.11, 6.12.

Chapt. 6: pg. 184 - 185: Exercises: 6.16, 6.17, 6.28,

Chapt. 6: pg. 208: Exercise: 6.86.

Week 5 – 9/28/15 – 10/4/15 EXAM II – Chapts. 5 & 6

Read chapt. 7: Course Textbook – Probability: Pgs. 213 - 258.

Homework Assignment:

Chapt. 7 – pgs. 222 - 225: Exercises: 7.1, 7.2, 7.4, 7.5, 7.6, 7.14, 7.15.

Chapt. 7: pg. 246 - 7: Exercises: 7.84, 7.87, 7.102.

Chapt. 7: pg. 256: Exercise: 7.125.

Week 6 – 10/5/15 – 10/11/15

Read chapt. 8: Course Textbook – Continuous Probability Distributions: Pgs. 259 - 300.

Homework Assignment:

Chapt. 8 – pgs. 265: Exercises: 8.1, 8.2, .

Chapt. 8: pg. 280 - 282: Exercises: 8.15 – 8.19, 8.34, 8.40, 8.44, 8.51.

Week 7 – 10/12/15 – 10/18/15   Exam III(Chapts. 7, 8)

Read chapt. 11: Course Textbook – Tests of Hypotheses: Pgs. 347 - 384.

Homework Assignment:

Chapt. 11 – pgs. 351: Exercises: 11.1, 11.4, 11.5.

Chapt. 11: pg. 368 - 370: Exercises: 11.7, 11.8, 11.9, 11.16, 11.28, 11.34.

Week 8 – 10/19/15 – 10/25/15

Read chapt. 16: Course Textbook – Simple Linear Regression/Correlation: Pgs. 628 – 685.

Exam II(Chapts. 6, 7, 8, 11)

Homework Assignment:

Chapt. 16 – pgs. 638 - 9: Exercises: 16.1, 16.2, 16.4.

Chapt. 16: pg. 658 - 9: Exercises: 16.22, 16.45, 16.49

Chapt. 16: pgs. 675 – 677: Exercises: 16.119, 16.120 .

Chapt. 16: pg. 677: Case 16.1(a, b only)

Week 9 – 10/26/15 – 11/1/15

Study: Posted in-class Powerpoint presentation. Time Series Analysis.

Homework Assignment:

Chapt. 20: pg. 842 - 3: 20.1, 20.4, 20.13,
        Pg. 848: 20.18, 20.22,
        Pg. 857: 20.34, 20.35.

Week 10: 11/2/15 – 11/8/15 - Final Review: Final Examination. Chapts. 11, 16, 20

Term Project due on in week 10. To be submitted through Blackboard using the submission link provided.

TERM PROJECT ASSIGNMENT

(6 Parts): *DESIGNING A SAMPLE SURVEY*

Due Date: 11/8/15.

Note: This document is subject to revisions, date changes, updates, etc. as per the discretion of the course instructor. Students will be informed of any changes in a timely manner.

Any questions relating to this project, should be addressed to the course instructor via email.
This project will be due in Week 10. It is to be submitted online through Blackboard using the link that you will see in Blackboard in relation to the Week 10 Term Project.

This project will be done on an individual basis.

This project is an exercise in developing a short questionnaire/survey, that will form the basis for gathering statistical information in support of your survey objective. We will be covering sampling methods in this course.

Please do not leave this project for the last minute.

In this project, you are being asked to identify **one** survey project that you could actually implement. However, I am not asking you to actually conduct the survey. Examples of topics that you may use for this project include:

- A survey of undergraduate students regarding hours for the libraries;
- A survey of La Verne alumni and their continued involvement in university matters, ongoing contributions/support of university projects.
- A survey of La Verne alumni throughout the USA and their interest in participating in local Univ. of La Verne sponsored events, and outreach programs.
- A survey of Univ. of La Verne graduate students and their satisfaction with their academic programs, faculty, learning resources, and preparedness for their respective career path.
- A survey conducted, based on university faculty and administration responses, in relation to the university meeting the needs of its growing base of international students in relation to addressing factors such as non-native English-speaking (NNS) international students, on-campus housing, university sponsored events for international students, addressing international student issues, etc.

- A survey of academic departments to learn about their uses of information technology;
- Faculty Course Evaluations and other means of evaluating faculty teaching;
- A survey of the La Verne community to learn about the universities position on academic integrity(i.e. - plagiarism, academic honesty, etc.).
- A survey of the subscribers to a local newspaper.
- A survey of La Verne students who frequent various restaurants in the local La Verne Community.
- A survey of students who use the La Verne Library and library resources, both onsite and online, in pursuit of their respective academic degree programs.
- The option will be left to your team to choose an alternative survey project, other than those listed, that is of interest to the team members. This alternative option must be presented to the course instructor no later than week 8. Upon instructor approval, you can work on your alternative survey project.

You can choose one of the above topics or suggest your own topic. By the end of week 3, please notify the course instructor via email with your proposed term project topic.

Each student will participate in the preparation of a term project that addresses ALL of the project criteria defined in this document.

When you are ready to submit this term project, through Blackboard, be sure to include a cover page with the title of your project and your first and last name.

Responses to each part of this project, as defined below, must be noted on the final project submission, followed by the appropriate responses. The expectation is that the responses will be in both qualitative and quantitative format, complete with supporting data, if acquired, charts, graphs, a questionnaire, etc.

It is not required that an actual survey be conducted in support on your analysis and project presentations.

Within the context of your final submitted term project presentation, all of the questions in the following Parts I – VI, should be comprehensively addressed.

Part I

A. Why is the topic that you chose of interest to you? Is there a client(individual, business, department, etc.,) for whom you might do the survey?

B. What question(s) do you propose to study? Give a brief answer that would have been understandable by a non-statistician.

C. What research has already been done on the topic or on the theoretical construct of central importance to your topic? What could be learned from survey results? Each group member should locate and review 1 relevant piece of research (e.g., article, report, book, etc.), and contribute their thoughts on this question.

Part II

D. What population or populations do you plan to sample? (This is the question many tend to miss).

E. To what population(s) do you wish to make inferences?
How does it differ from the sampled population in D?
What possible sampling and non-sampling errors could arise in the survey that you plan to conduct?
Explain each possible error, how it could occur, and how you suggest tackling it.

F. How do you plan to carry out the survey (e.g., by telephone, e-mail) and why?

G. What variables do you propose to measure?

Part III

H. How do you plan to protect the privacy and assure the confidentiality of respondents? Talk about data collection, protection, and disclosure.

Part IV

I. Decide on a sampling scheme (e.g., voluntary sampling, convenience sampling, simple random sampling, systematic random sampling, stratified sampling, cluster sampling, etc.) and explain why you chose it.

J. **Design a questionnaire with approximately <u>15</u> questions that you would use to gather data and information in support of your survey, if it was actually conducted.**

K. Give some idea of the sample size you will require and how you arrived at this number (talk about the margin of error for inferences you want to make).

Part V

L.   Prepare a single completed/conducted "sample" version of your questionnaire. You need not actually have a respondent prepare this completed "sample" questionnaire. It would be of added value if that were the case, but it is not required. A fictitious "sample respondent questionnaire" will be acceptable. I will leave this to your discretion. Please do define if your completed questionnaire is "real" or "fictitious".

Part VI

M.   Include in your final presentation, any and all issues, revisions, rethinking, etc., in relation to your questionnaire design, as the questionnaire was being developed.
N. Include in your final presentation, any and all challenges that you faced in compiling the information required in this project.

O.   Submit a final version of your responses to parts I – V, including your questionnaire, through Blackboard, by the due date specified at the start of this project.

P.   Develop a final summarization report on what would be your proposed schedule might be for implementing your selected survey, including plans for nonresponses, "client" follow-ups, data analysis, etc.

Q. Assume that your project survey will be implemented once approved

Additional information:

Survey Research

Survey research is one of the most important areas of measurement in applied social research. The broad area of survey research encompasses any measurement procedures that involve asking questions of respondents. A "survey" can be anything form a short paper-and-pencil feedback form to an intensive one-on-one in-depth interview.

I will begin by looking at the different types of surveys that are possible. These are roughly divided into two broad areas: Questionnaires and Interviews. The next step is to select the survey

method that is best for your situation. Once you've selected the survey method, you have to construct the survey itself. Here, we will be address a number of issues including: the different types of questions; decisions about question content; decisions about question wording; decisions about response format; and, question placement and sequence in your instrument.

Types of Surveys

Surveys can be divided into two broad categories: the **questionnaire** and the **interview**. Questionnaires are usually paper-and-pencil instruments that the respondent completes. Interviews are completed by the interviewer based on the respondent says. Sometimes, it's hard to tell the difference between a questionnaire and an interview. For instance, some people think that questionnaires always ask short closed-ended questions while interviews always ask broad open-ended ones. But you will see questionnaires with open-ended questions (although they do tend to be shorter than in interviews) and there will often be a series of closed-ended questions asked in an interview.

Survey research has changed dramatically in the last ten years. We have automated telephone surveys that use random dialing methods. There are computerized kiosks in public places that allows people to ask for input. A whole new variation of group interview has evolved as focus group methodology. Increasingly, survey research is tightly integrated with the delivery of service. Your hotel room has a survey on the desk. Your waiter presents a short customer satisfaction survey with your check. You get a call for an interview several days after your last call to a computer company for technical assistance. You're asked to complete a short survey when you visit a web site.

This forms the basis for what you are being asked to accomplish in this term project.

I took the time to develop a listing of online videos that you may want to review in relation to several of the topics that will be discussed in this course.

BUS270: Videos for the Chapters

A. DESCRIPTIVE STATISTICS & DATA COLLECTION
Ch.1 What is statistics

What is statistics (simplify statistics):
http://www.youtube.com/watch?v=ooOdP1BJxLg

Type of data – 4 level of measurement:

http://www.youtube.com/watch?v=hZxnzfnt5v8

How to install Data Analysis add-ins in MS Excel:
http://www.youtube.com/watch?v=-ubtpQJ1smI

How to build a PivotTable in Excel:
http://www.youtube.com/watch?v=7zHLnUCtfUk

Sampling Methods (Partially)

Type of sampling methods: http://www.youtube.com/watch?v=be9e-Q-jC-0

Simple Random Sampling using RAND() in Excel:

http://www.youtube.com/watch?v=SoK9kq-0uXg

Parameter, statistic, and Sampling error:
http://www.youtube.com/watch?v=6O98qw7S8xA

Ch.2 Describing Data: Frequency

Bar graph (Excel): http://www.youtube.com/watch?v=xlWQRtUpuXo

Pie chart (Excel): http://www.youtube.com/watch?v=lVlXbH4nczI

Histogram and cumulative frequency (Excel):

http://www.youtube.com/watch?v=x8ePdM9LquM

Histogram (with bins and grouping) and cumulative frequency (Excel):
http://www.youtube.com/watch?v=RyxPp22x9PU

Ch.3 Describing Data: Numerical Measures

Descriptive statistics v. inferential statistics:

http://www.youtube.com/watch?v=oHGr0M3TIcA

Descriptive statistics in MS Excel:

http://www.youtube.com/watch?v=oHCd2Kq_HIY

Khan Academy Descriptive statistics

Central tendency: http://www.youtube.com/watch?v=81zcjULlh58

Standard deviation and variance (hand):

http://www.youtube.com/watch?v=AjND5AkSeAI

Mean, Stand deviation and variance (MS Excel):

www.youtube.com/watch?v=efdRmGqCYBk

Displaying and Exploring Data

Dot plot: http://www.youtube.com/watch?v=N7HHmTpccZI

Stem and leaf: http://www.youtube.com/watch?v=oEY8u-4T-yQ

Percentile and quartile (simple explanation):

http://www.youtube.com/watch?v=Snf6Wpn-L4c

Probability: - Chapt. 6

https://www.youtube.com/watch?v=-8eSOmTPUbk

https://www.youtube.com/watch?v=uzkc-qNVoOk

https://www.youtube.com/watch?v=AY3O_qsSnbE

https://www.youtube.com/watch?v=xgoQeRyvw5I

https://www.youtube.com/watch?v=xLK0MWRwFYc

Data Sampling/Collection Methods: Chapt. 5:

https://www.youtube.com/watch?v=be9e-Q-jC-0

https://www.youtube.com/watch?v=ajyeWYoZFX4

https://www.youtube.com/watch?v=2m0PrlvLP_Y

Discrete Random Variables – Chapt. 7:

https://www.youtube.com/watch?v=0P5WRKihQ4E

Continuous Probability Distributions – Chapt. 8:

https://www.youtube.com/watch?v=OWSOhpS00_s

https://www.youtube.com/watch?v=K5gwAzEU8_w

Hypothesis Testing – Chapt. 11:

https://www.youtube.com/watch?v=VK-rnA3-41c

https://www.youtube.com/watch?v=rWFDXt-MlNs

https://www.youtube.com/watch?v=cpL38ZeIecE

Simple Linear Regression – Chapt. 16:

https://www.youtube.com/watch?v=KsVBBJRb9TE

https://www.youtube.com/watch?v=zPG4NjIkCjc

Chapt. 20: Time Series Analysis:

https://www.youtube.com/watch?v=GUq_tO2BjaU

https://www.youtube.com/watch?v=F3Kjdz4K7vE

Statistical Process Control – Chapt. 21

https://www.youtube.com/watch?v=0GfBSuwhUwI

https://www.youtube.com/watch?v=UM4wxyc1Tzw