BA215 Business Statistics

VIP - Week 1

Week 1 Objectives:

In this week you will be introduced to Defining and Graphing Statistics

Upon successful completion of this Lesson, the student will be able to:

- Define Statistics and identify its scope and limitations.
- Describe and apply the basic concepts in statistics.
- Represent the statistical data in different forms, and interpret the different representations.
- Describe the basic concepts of probability.
- Apply decision making theory to make decisions under risk and under uncertainty.

Make sure to utilize the "My Notes" section to organize your thoughts with regard to what is the most important information within the lecture that is being imparted. Focus on factual information relevant to each discussion topic such as definitions and processes.

Helpful tips for using this VIP Guide:

- This icon  means that there is a video to watch
- This icon  means that there is something interesting to read

Reading Assignment and/or Lecture Key Points:

Descriptive statistics quantitatively identify the main attributes of a collection of data. It tells about the data, it could be size of the sample or demographic information.

Inferential statistics has more to do with drawing conclusions from the data itself. It could even contain such information as a recommendation of what to do next.

Sample vs population, a sample is a subset of the population, just a small part of the whole. For example if birds is the population, woodpeckers could be a sample.

Statistic vs parameter, this is related to sample and population. A statistic describes the subset (sample) where a parameter relates to the whole (population)

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Types of variables, variables are just things that could impact the outcome. The temperature of the room, the humidity, how fast a liquid is poured or how long something is exposed to heat are all variables.

Measurability and Variability, measurability has to do if something can be tracked like say the distance from one point to another. Variability has to do with repeating some actions and getting different results. When a process is performed several times different things can be tracked (measured) such as range, standard deviation and variance of proportion

- Range – the smallest to the largest measurement
- Standard deviation – the measurement from the middle (either direction)
- Variance of proportion – this has to do with the difference in something is equal to the area, for example if a variance is 1 out of 10 then it would be the same as 10 out of 100.

Data Collection – the act of observing and capturing information about the sample, recording weights, sizes or counting things are examples of data collection.

Probability vs Statistics, probability deals with the future, how likely is the potential of something happening where statistics deals with the past, what happened and how many times did it happen?

Statistics and Technology, as technology improves gathering data, recording data and analyzing data become much more efficient. The increase in the speed of computers as well as their decrease in size and price has greatly impacted the scientific and mathematical communities. Much more data can be analyzed much faster using technology.

Histograms graphical displays of data, histograms are visual representations of data. This helps to turn volumes of data into useful information. Think of the saying “a picture is work 1,000 words!

Measures of central tendency, are the average (arithmetic mean), the median and the mode. The average is the sum of the numbers divided by the number of occurrences, the mode being the result that occurs most often and the median being the middle number in a range.

Measures of dispersion, think of this as how far things are spread out. If you throw 100 darts at a dart board, some are near the center and some are far away. They are usually spread all over the board, not all 100 in the bulls eye!

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W1 Discussion Introduction

Hello Class! For this discussion you can choose which question you respond to. Feel free to respond to both, however only one is required. Please respond to **one** of the following questions:

Question A

What is your current knowledge level of this course topic and what do you hope to learn before the course is over?

Question B

Write a 200 word essay/explanation on why you should study statistics. In your answer define the word statistics and discuss how you will use statistics in your career field.

> *Please respond to ONE of the questions and be sure to post two additional times to peers and/or the instructor. The usual length of a post is 75 to 150 words, but may go longer, depending on the topic. If you use any source outside of your own thoughts you should reference that source. Include solid grammar, punctuation, sentence structure and spelling.*

Alternate Discussions:

Statistics Example

Statistics are in our everyday lives. Find an article online that exemplifies the use of statistics and presents an unusual finding as the result of a study. Describe why these results are (or are not) “newsworthy".

How Computers Increased Usefulness of Statistics

Write a 200 word explanation on “How computers have increased the usefulness of statistics to professionals such as researchers, government workers who analyze data, statistical consultants, and others?” Use the theory from this week’s lesson as background in your discussion. In your answer also discuss the term “Garbage in, Garbage Out.” What does that mean to researchers when analyzing statistical data?

VIP Suggestions:

No matter which discussion your instructor uses your approach should be the same.

- Read the question

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- Make an outline of your thoughts
- Perform research to validate your ideas
- Form an opinion and document your initial response
- Read the replies of your peers and respond within the assigned time
    - When you reply be sure to start a mini discussion by asking questions

Example of how to get started:

If you are assigned discussion B above you would want to first use your text or the internet to define the terms.

Then start an outline on paper or a word processor to sketch your answer. Be sure to include references if you copy information from either location. Finally go back and type out your ideas into complete sentences.

Your final product should be a concise but complete explanation

W1 Assignment

Using the information in the Lectures & Presentation, answer the following:

Question 1

1. Determine which of the following statements is descriptive in nature and which is inferential. Refer to the data below in How Old is My Fish?

How Old is My Fish							
Average age by length of largemouth bass in new York State							
Length	8	9	10	11	12	13	14
Age	2	3	3	4	4	5	5

a. All 9-inch largemouth bass in New York State are an average of 3 years old.

b. Of the largemouth bass used in the sample to make up th NYS DEC Freshwater Fishing Guide, the average age of 9-inch largemouth bass was 3 years.

In your answer also describe and explain the difference between descriptive statistics and inferential statistics.

Question 2

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2. Since 1981, Fortune magazine has been tracking what they judge to be the "best 100 companies to work for." The companies must be at least ten years old and employ no less than 500 people. Below are the top 25 from the list compiled in 1998, together with each company's percentage of females, percentage of job growth over a 2 year span, and number of hours of professional training required each year by the employer.

Company Name	Women (%)	Job Growth (%)	Training (hr/yr)
Southwest Airlines	55	26	15
Kingston Technology	48	54	100
SAS Institute	53	34	32
FEL-Pro	36	10	60
TDIndustries	10	31	40
MBNA	58	48	48
W.L.Gore	43	26	27
Microsoft	29	22	8
Merck	52	24	40
Hewlett-Packard	37	10	0
Synovus Financial	65	23	13
Goldman Sachs	40	13	20
MOOG	19	17	25
DeLoitte & Touche	45	23	70
Corning	38	9	80
Wegmans Food Products	54	3	30
Harley-Davidson	22	15	50
Federal Express	32	11	40
Proctor & Gamble	40	1	25
Peoplesoft	44	122	0
First Tennessee Bank	70	1	60
J.M. Smucker	48	1	24
Granite Rock	17	29	43
Petagonia	52	5	62
Cisco Systems	25	189	80

a. Find the mean, range, variance, and standard deviation for each of the three variables shown in the list. Present your results in a table.

b. Using your results from (a), compare the distributions for job growth percentage and percentage of women employed. What can you conclude?

Consider the following:

Make sure to reference the Key Points from the lectures above.

Example:

To find the range, you would look for the lowest and the highest!

Resource Sites on Studying Strategies:

This is worth watching (and listening to!)

Measures of Central Tendency Rap
http://www.youtube.com/watch?v=1jVZi0cNHls

The Mean, Median and Mode Toads
http://www.youtube.com/watch?v=5C9LBF3b65s

How to calculate Standard Deviation and Variance
http://www.youtube.com/watch?v=qqOyy_NjflU

An example of online tutoring:
math.tutorcircle.com

Interesting article about teens and technology
http://www.infodocket.com/2013/03/13/usage-statistics-pew-internet-releases-teens-and-technology-2013/