Statistics I

2-Day Professional Development Seminar

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SEMINAR DESCRIPTION

We live in the information age. We are bombarded with information everyday.

Most often that information is summarized in a numerical form like percentages. We use such information to make important decisions like:

• Which brand to buy
• Which schools to go
• What foods to eat
• Which pharmaceuticals to use or medical treatments to undergo.

Therefore we need to become savvy consumers of information presented in these numerical forms.

Information in numerical form is called data.

Statistics is the science of handling data including:
• Collecting data
• Organizing data
• Understanding and interpreting data

In order to make informed decisions based on information in statistical form, we need to be able to discern the meaning and trustworthiness of the statistics.

In this Statistics I seminar, we will learn about methods for collecting data and how to present this data. Some collection methods produce trustworthy data. Other collection methods produce data that is inherently flawed and misleading. In this module we will study how to determine the trustworthiness of the ways in which the data in a statistical study is collected. Other topics include Measures of Central Tendency, and Measures of Dispersion

There will be a morning & afternoon tea/coffee breaks with snacks (10:00 am and 3:00pm) and a networking power luncheon (from 12:00 to 13:00pm)

REVIEW AND BACKGROUND

A prerequisite for this class is basic Mathematics, or equivalent. Some review will be provided in class, if required.

SEMINAR OUTLINE*

*(subject to minor changes)

DAY 1 : Morning

Introduction to Statistics

- History of Statistics
- Meanings of Statistics
- Kinds or Branches Statistics
- Definition of Statistics
- Characteristics of Statistics
- Limitations of Statistics
- Functions or Uses of Statistics
- Importance of Statistics in Different Fields
- Some Basic Definitions in Statistics
- Collection of Statistical Data

DAY 1 : Afternoon

Presentation of Data

- Classification of Data
- Tabulation of Data
- Construction of Statistical Table
- Difference Between Classification and Tabulation
- Frequency Distribution
- Construction of Frequency Distribution
- Example Construction of Frequency Distribution
- Frequency Distribution of Discrete Data
- Cumulative Frequency Distribution
- Diagrams and Graphs of Statistical Data
- Simple Bar Chart
- Multiple Bar Chart
- Component Bar Chart
- Percentage Component Bar Chart
- Pie Chart

DAY 2 : Morning

Measures of Central Tendency

- Average and Types of Averages
- Arithmetic Mean
- Examples of Arithmetic Mean
- Weighted Arithmetic Mean
- Merits and Demerits of Arithmetic Mean
- Geometric Mean
- Properties of Geometric Mean
- Merits and Demerits of Geometric Mean
- Harmonic Mean
- Merits and Demerits of Harmonic Mean

DAY 2: Afternoon

Measures of Dispersion

- Introduction to Measure of Dispersion
- Measures of Dispersion
- Range and Coefficient of Range
- Quartile Deviation and its Coefficient
- Mean Deviation and its Coefficient
- Standard Deviation
- Examples of Standard Deviation
- Coefficient of Standard Deviation and Variation
- Uses of Coefficient of Variation
- The Variance
- Sheppard Corrections and Corrected Coefficient of Variation
- Combined Variance