# FACULTY OF ENGINEERING & TECHNOLOGY

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# LECTURE- 5

BSc (AG)
2nd Year , IIIrd Sem.
Statistical Methods
AES-213

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## Outline of lecture

➢ Graphical Representation of data

➢ Types of Graphs

➢ Time Series Graphs

➢ Line Graph

➢ Net Balance Graph

➢ Test Your Skills (Questions based on  Lecture)

➢ Suggested Readings & References

## Types of Graphs

Graphs are of two types

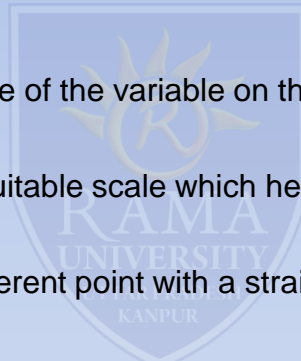1. Time Series graphs

2. Frequency Distribution graphs

## Time Series Graphs

A time series graph is a graph which depicts the value of a variable over a different point of time. In a time series graph, time is the most important factor and the variable is related to time. It helps in the understanding and analysis of the changes in the variable at a different point of time. Many statisticians and businessmen use these graphs because they are easy to understand and also because they offer complex information in a simple manner. Further, constructing a time series graph does not require a user with technical skills.

# Graphical Representation of Data

Here are some major steps in the construction of a time series graph

- Represent time on the X-axis and the value of the variable on the Y-axis.

- Start the Y-value with zero and devise a suitable scale which helps you present the whole data in the given space.

- Plot the values of the variable and join different point with a straight line.

- You can plot multiple variables through different lines.

## Line Graph

You can use a line graph to summarize how two pieces of information are related and

how they vary with each other.

**Advantages**

❑  You can compare multiple continuous data-sets easily.

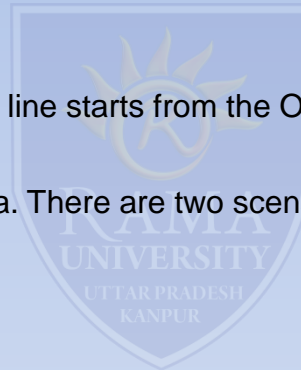❑  You can infer the interim data from the graph line.

**Disadvantages**

o  It is only used with continuous data.
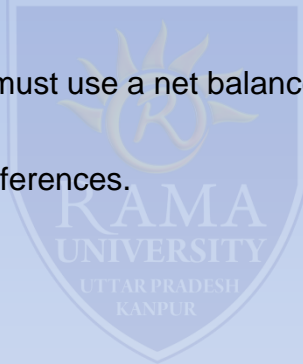
## Use of a false Base Line

Usually, in a graph, the vertical line starts from the Origin. However, in some cases, a false Base Line

is used for a better representation of the data. There are two scenarios where you should use a false Base Line:

❖ To magnify the minor fluctuation in the time series data

❖ To economize the space

## Net Balance Graph

If you have to show the net balance of income and expenditure or revenue and

costs or imports and exports, etc., then you must use a net balance graph. You can use different

colors or shades for positive and negative differences.

## Test Your Skills (Fill in the blanks)

1. How many types of graph are ……….

2. What is time series graph ……….

3. Write one advantages of line graph ………

4. What is net balance graph ……..

## Suggested Readings & References

1) Statistical Methods: P.N. Arora, Sumeet Arora & S. Arora; S. Chand & Company Ltd.

2) Fundamental of Mathematical Statistics: S.C. Gupta & V. Kapoor; Sultan Chand & Sons.

3) Statistics: M.R. Spiegel; Schaum's Outline Series, Mc-Graw Hill Publication.

4) Advanced Engineering Mathematics: Erwin Kreyszig; John Wiley & Sons Inc.

5) Elements of Statistics: J.P. Chauhan & S. Kumar; Krishna Publication.

**\* THANK YOU \***