AL MUSTAQBAL UNIVERSITY
جامـــــعة المـــستقبل

**Lecture 1**



# Introduction to Biostatistics and Types of Data

**By**

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# What is Biostatistics?

- Biostatistics is the branch of statistics that applies statistical methods to biology and medicine.

- It helps in collecting, analyzing, interpreting, and presenting biological data to draw conclusions.

# Importance of Biostatistics

- - Designing experiments and clinical trials
- - Analyzing laboratory results
- - Understanding disease patterns
- - Supporting diagnosis and treatment
- - Evaluating effectiveness of drugs and vaccines

# Basic Terms

- • **Population:** The entire group under study

- • **Sample:** A part taken from the population

- • **Variable:** A characteristic that varies among individuals

- • **Data:** The collection of values or observations

# Types of Data

- **A. Qualitative (Categorical):** Describes qualities, not numbers
- **- Nominal:** No order (e.g., blood type)
- **- Ordinal:** Ordered categories (e.g., mild, moderate, severe)

- **B. Quantitative (Numerical):** Expressed as numbers
- **- Discrete:** Whole numbers only (e.g., number of patients)
- **- Continuous:** Can take any value (e.g., height, temperature)

# Sources of Data

- • **Primary Data:** Collected directly by the researcher (e.g., lab measurements)
- • **Secondary Data:** Collected by others (e.g., hospital records, published studies)

# Levels of Measurement

- 1. **Nominal** – Categories without order
- 2. **Ordinal** – Ordered categories
- 3. **Interval** – Equal intervals, no true zero
- 4. **Ratio** – Equal intervals, true zero

# Why Data Classification Matters

- - Helps select the right statistical test
- - Ensures correct data presentation (tables, graphs)
- - Leads to accurate scientific conclusions

# Summary

- • Biostatistics applies statistics in biology and health.
- • Data can be **qualitative** or **quantitative**.
- • Understanding data types and levels is essential for proper analysis.

# Student Question

- A researcher records the blood group of 100 students.
- → **What type of data is this?**
- Answer: ?????