DEPARTMENT OF STATISTICS

BIOSTATISTICS

By

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BIOSTATISTICS

INTRODUCTION:

FRANCIS GALTON is called as the father of biostatistics.

He created the statistical concept "Correlation".

BIOSTATISTICS

➢ Biostatistics is a branch of biological science which deals with the study and method of collection, presentation, analysis and interpretation of data of biological research.

➢ Biostatistics is also called as **Biometry (Biometrics)**.

The term *'Biometry'* was introduced Walter Weldon (1832-1885).

STATISTICS

➤ Statistics is a branch of applied mathematical which deals collection, classification, analysis and interpretation of data of biometry research.

CLASSIFICATION OF BIOSTATISTICS

There are two types of classification :

➢DESIGN OF EXPERIMENT (Collection of data)

➢STATISTICAL ANALYSIS

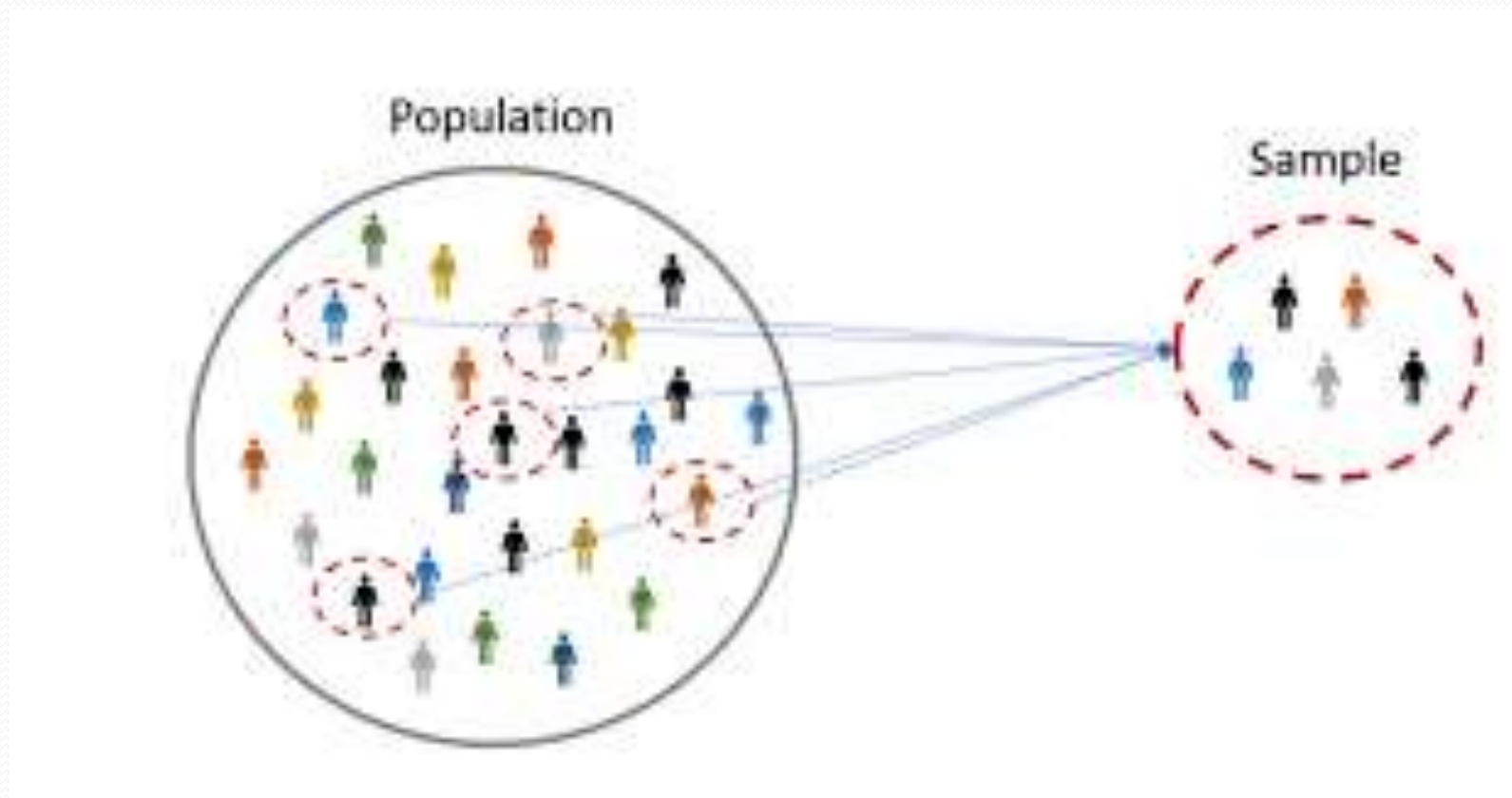# IMPORTANCE OF STATISTICS IN BIOLOGICAL SCIENCE

Biostatistics has application in all the branches of life science.

APPLICATION OF BIOSTATISTICS

- Medical and Pharmaceutical science
- Genetics
- Research

POPULATION AND SAMPLE

BIOSTATISTICS (EXAMPLE)

Physicochemical Parameters

1. Temperature
2. DO(Dissolved Oxygen)
3. BOD(Biochemical Oxygen Demand)
4. pH
5. Free Carbon dioxide
6. Turbidity
7. Nitrates
8. Phosphate
9. Chloride
10. Alkalinity
11. Total Dissolved Solids(TDS)
12. Electrical Conductivity (EC)

Biological Parameters

1. Net Primary Productivity (NPP)
2. Gross Primary Productivity (GPP)
3. Communication Respiration (CR)
4. Net Primary Efficiency(NPE)
5. Respiration(% of GPP)

MEASURE OF CENTRAL TENDENCY

➢ MEAN: (Average)

➢ MEDIAN: Odd =(n/2 + 1)   Even=(n/2)

➢ MODE : (Maximum frequency) Norm

PROBABILITY

➢ ***Random Experiment*** (Any well-defined procedure that produces an observable outcome that could not be perfectly predicted in advance.)

➢ ***Sample Space*** (a collection or a set of possible outcomes of a random experiment.)

➢ ***Event*** (outcomes of an experiment)

Random Experiment — 2x — Flipping a coin twice

Possible Outcome — H H — 2 Heads

Sample Space — Heads, Heads — Heads, Tails — Tails, Heads — Tails, Tails

Probability

$$P(A) = \frac{m}{n} = \frac{Number\ of\ cases\ favourable\ to\ A}{Total\ (Exhaustive)\ number\ of\ cases}$$

➢ Probability of an event which is certain to occur is 1 and the probability of an impossible event is zero.

➢ The probability of occurrence of an event lies between 0 and 1 both inclusive.