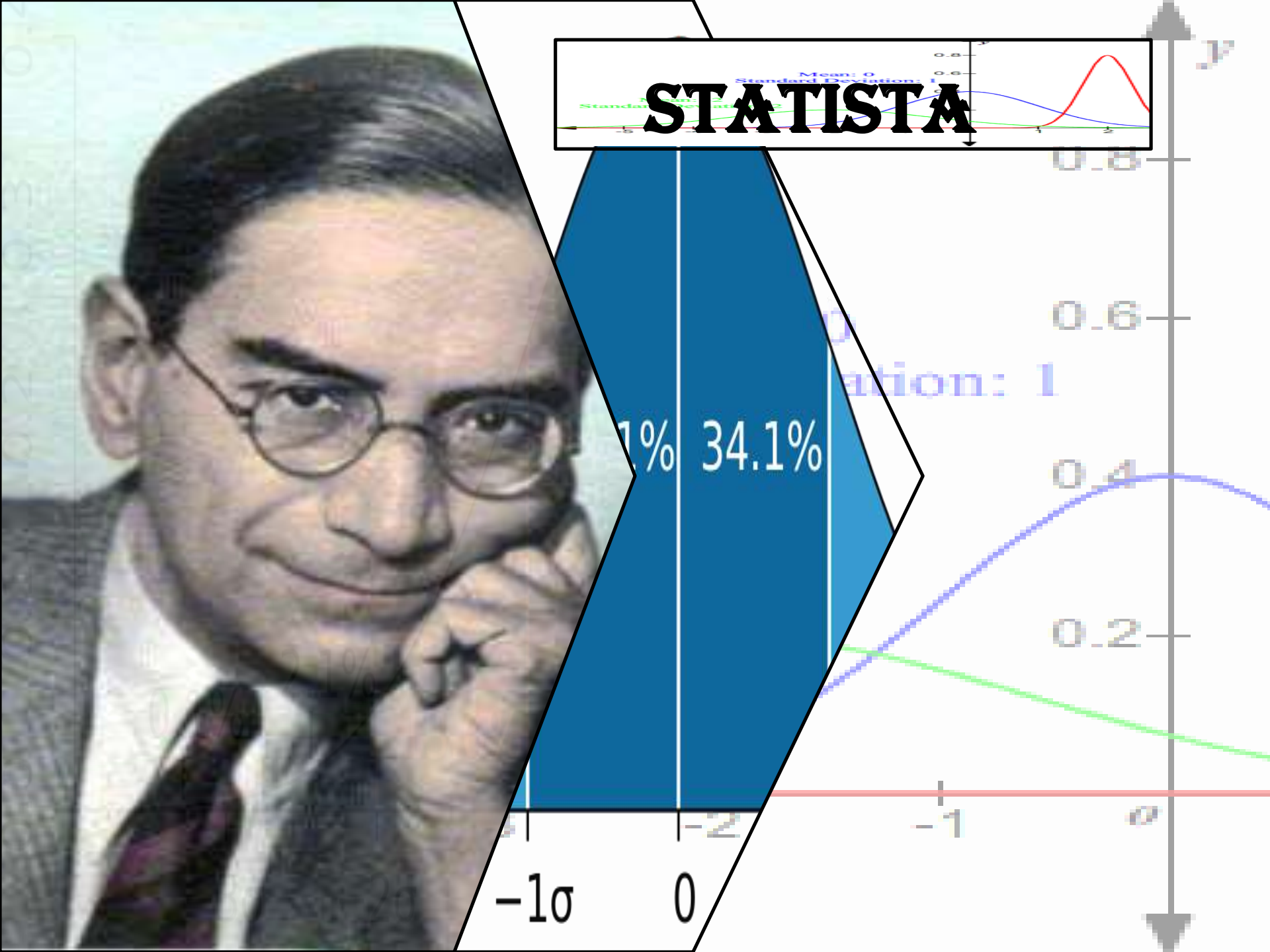
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EDITORIAL BOARD

Father of Indian Statistics

"STATISTICS MUST HAVE A CLEARLY DEFINED PURPOSE, ONE ASPECT OF WHICH IS SCIENTIFIC ADVANCEMENT AND THE OTHER HUMAN WELFARE AND NATIONAL DEVELOPMENT."
PROF. PRASANT A CHANDRA MAHALANOBIS

CONTENTS

Few words from advisory board

STATISTA IS THE E MAGAZINE OF THE STATISTICS DEPARTMENT. THIS IS THE FIRST E-MAGAZINE BROUGHT BY THE MAJOR STUDENTS OF STATISTICS DEPARTMENT THROUGH WHICH WE CAN ACQUIRE KNOWLEDGE, INFORMATION, ACCESS RELATED TO STATISTICS. THUS E-MAGAZINE CONTAINS MANY SPECTRUM OF ARTICLE WHICH MAY CONTAIN IMMENSE ARTICLES OF INTEREST RELATED TO FUZZINESS, GENETICS, STATISTICS ETC. WE ARE GRATEFUL TO OUR PRINCIPAL DR MANOJ KUMAR MAHANTA FOR GIVING US THE OPPURTUNITY TO ACCESS THE E-MAGAZINE FROM OUR DEPARTMENT BY THE STUDENTS.

FATHER OF STATISTICS

Prasanta Chandra Mahalanobis OBE, FNA, FASc,FRS (29 June 1893 – 28 June 1972) was an Indian scientist and statistician. He is best remembered for the Mahalanobis distance, a statistical measure, and for being one of the members of the first Planning Commission of free India. He made pioneering studies in anthropometry in India. He founded the Indian Statistical Institute, and contributed to the design of large-scale sample surveys. For his contributions, Mahalanobis has been considered the father of modern statistics in India.

Ankita saikia
3RD semester

Fuzziness and probability

THE WORD FUZZINESS IS AN ALTERNATIVE TO RANDOMNESS FOR DESCRIBING UNCERTAINITY . BOTH FUZZINESS AND RANDOMNESS DESCRIBE UNCERTAINITY IN THE UNIT INTERVAL [0,1]. RANDOMNESS DESCRIBES THE UNCERTAINITY OF EVENT OCCURRENCE . IN PRACTICE WE APPLY PROBABILITIES TO FUZZY EVENTS. FUZZINESS IS A TYPE OF DETERMINISTIC UNCERTAINITY. FUZZINESS ARISES FROM THE AMBIQUITY BETWEEN A THING "A" AND ITS OPPOSITE A^C IF WE DONOT KNOW A WITH CERTAINITY ,WE DONOT KNOW A^C WITH CERTAINITY EITHER. ELSE BY DOUBLE NEGATION WE WOULD KNOW A WITH CERTAINLY. THIS PRODUCESS NONDEGENERATE OVERLAP. $A \cap A^C \neq \phi$ EQUIVALENTLY , THIS ALSO PRODUCES NON DEGENERATE UNDERLAP $A \cup A^C \neq X$
WHERE AS IN PROBABILITY P(A AND NOT A) =0 AND P(A OR NOT A)= 1.

DR. PRANITA GOSWAMI
HOD OF STATISTICS DEPARTMENT

Statistics and genetics

The distribution of nucleotide sequences in any organism can be studied using statistics. In other words statistics in genetics is concerned with statistical data for studying the distribution of various DNA data. genetics in statistics is a applied field of probability where various methods viz. correlation, regression, local dependency, non parametric, etc can be used and conclusions can be drawn accordingly. The area of genetical statistics is one of hottest topic in research to study the various factors related to genes.

Dr Anamika Dutta
guest faculty

STATISTICS IN PSYCHOLOGY

A branch of mathematics devoted to the collection, compilation, display, and interpretation of numerical DATA .PSYCHOLOGISTS RELY heavily on statistics to help assess the meaning of the measurements they make. Sometimes the measurements involve individuals who complete psychological tests; at other times, the measurements involve statistics that describe general properties of groups of people or animals.

In psychological testing, the psychologist may interpret test results in light of norms, or the typical results, provided from previous testing. In research, psychologists use two kinds of statistics, descriptive and inferential. Descriptive statistics simply give a general picture of the scores in a given group. They include the measures of central tendency and the measures of variability. Central tendency involves different kinds of averages: the mean, median, and mode. Variability involves the standard deviation, which indicates how far scores in a group are likely to be from the average.

INFERENTIAL STATISTICS ARE USED TO HELP PSYCHOLOGISTS DRAW INFERENCES, OR CONCLUSIONS, FROM THE DATA OBTAINED FROM THEIR RESEARCH. THE MOST COMMON STATISTICAL TESTS INCLUDE THE STUDENT'S T-TEST AND THE ANALYSIS OF VARIANCE (OR F-TEST); THESE STATISTICS HELP THE PSYCHOLOGIST ASSESS WHETHER THE DIFFERENCES IN AVERAGES ACROSS GROUPS ARE DUE TO THE EFFECTS OF AN INDEPENDENT VARIABLE. ANOTHER WIDELY USED INFERENTIAL STATISTIC IS THE CORRELATION COEFFICIENT, WHICH DESCRIBES THE STRENGTH OF THE RELATIONSHIP BETWEEN TWO VARIABLES. FOR EXAMPLE, THERE IS A POSITIVE CORRELATION BETWEEN A STUDENT'S SCORE ON THE SCHOLASTIC ASSESSMENT TEST (SAT) AND HIS/HER GRADES IN THE FIRST YEAR OF COLLEGE. CORRELATIONS INVOLVE PATTERNS THAT EXIST IN GROUPS; INDIVIDUALS WITHIN THOSE GROUPS MAY NOT PERFORM IN THE MANNER THE CORRELATION PREDICTS THAT THEY WILL, BUT IF LARGE NUMBERS OF STUDENTS ARE TESTED, GENERAL TRENDS MAY BE DETECTED.

PULAK KALITA
5TH SEMESTER

National Statistics Day

The date has been chosen as June 29 to commemorate the birth anniversary of Professor PC Mahalanobis. National Statistics Day is observed on June 29.The Government of India decided to celebrate the outstanding contribution made by Late Professor Prasanta Chandra Mahalanobis in the field of economic planning and statistical development and hence mark his birth anniversary as 'National Statistics Day'. Former Reserve Bank of India governor, Chakravarthi Rangarajan has been conferred with the first Prof. P C Mahalanobis Award in Official Statistics for lifetime achievements .

The first World Statistics Day was celebrated on October 20, 2010.

PRAKASH KUMAR HALOI
3RD SEMESTER

AffairsCloud

Ex-RBI governor

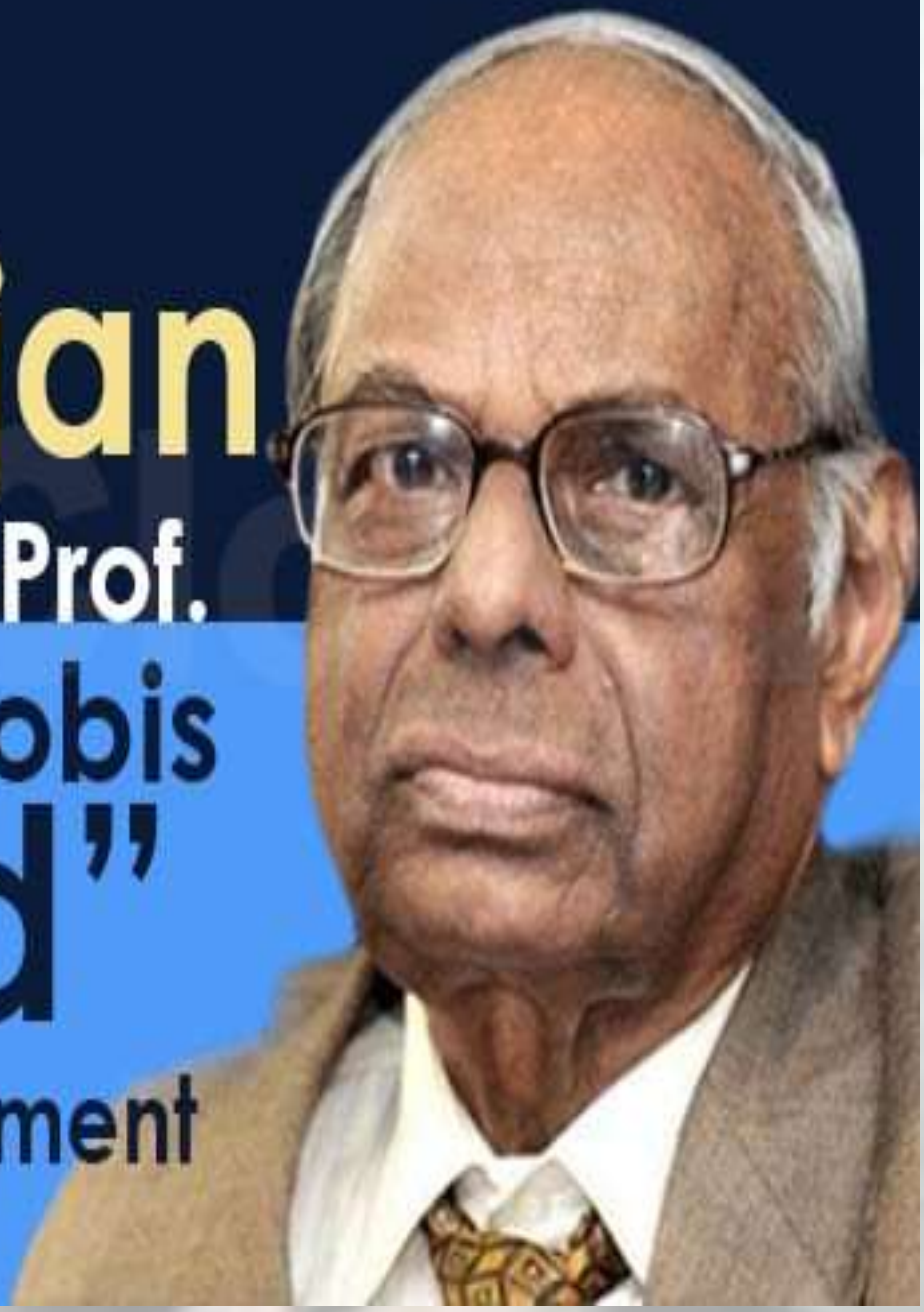
Rangarajan

1st Prof.

"P.C.Mahalanobis Award"

For Lifetime Achievement

on Stats Day



MATHEMATICS IN STATISTICS

MATHEMATICS IN STATISTICS IS THE APPLICATION OF PROBABILITY THEORY. SPECIFIC MATHEMATICAL TECHNIQUES ARE USED IN STATISTICS WHICH INCLUDE MATHEMATICAL ANALYSES LIKE LINEAR ALGEBRA , STOCHASTIC ANALYSES, DIFFERENTIAL EQUATIONS, AND MEASURE THEORY.

IN STATISTICS , STATISTICAL DATA COLLECTION IS CONCERNED ESPECIALLY WITH THE DESIGN OF RANDOMIZED EXPERIMENTS AND WITH THE PLANNING OF SURVEY USING RANDOM SAMPLING. THE DATA CAN ALSO BE ANALYZED BY TAKING SECONDARY HYPOTHESIS TO SUGGEST NEW STUDIES.

THANGLIENKIM PASULATE

5TH SEMESTER

BUSINESS STATISTICS

What is Business Statistics?

Statistics is the science of data. It involves collecting, classifying, summarizing, organizing, analyzing, and interpreting data. The main objective of Business Statistics is to make inferences about certain characteristics of a population in the business domain whether the population is people, objects, or collections of information. A population is an entire set of data and any real-life sample is normally only a subset of data contained in the population. The condition for randomness is essential to make sure the sample is representative of the population when it is used to make predictions or decisions about the population. Therefore, Business Statistics is the science of intelligent decision making in the face of uncertainty and is used in many disciplines, such as financial analysis,

ECONOMETRICS, AUDITING, PRODUCTION AND OPERATIONS, AND MARKETING RESEARCH. IT PROVIDES KNOWLEDGE AND SKILLS TO INTERPRET AND USE STATISTICAL TECHNIQUES IN A VARIETY OF BUSINESS APPLICATIONS.

THE SUBJECT OF BUSINESS STATISTICS TYPICALLY COVERS STATISTICAL STUDY, DESCRIPTIVE STATISTICS (COLLECTION, DESCRIPTION, ANALYSIS, AND SUMMARY OF DATA), PROBABILITY, AND THE DATA DISTRIBUTIONS, TEST OF HYPOTHESES AND CONFIDENCE INTERVALS, LINEAR REGRESSION, AND CORRELATION. STATISTICS IS A SCIENCE OF MAKING DECISIONS WITH RESPECT TO THE CHARACTERISTICS OF A GROUP OF PERSONS OR OBJECTS ON THE BASIS OF NUMERICAL INFORMATION OBTAINED FROM A RANDOMLY SELECTED SAMPLE OF THE GROUP. STATISTICIANS REFER TO THIS NUMERICAL OBSERVATION AS REALIZATION OF A RANDOM SAMPLE. A RANDOM SAMPLE IS ONLY A SAMPLE OF A FINITE NUMBER OF OUTCOMES OF A RANDOM PROCESS AND ONE CANNOT NORMALLY SEE A RANDOM SAMPLE.

THE ADVANTAGES OF STATISTICS IN BUSINESS

PLENTY OF COMPANIES NATURALLY COLLECT LOTS OF DATA IN THE COURSE OF BUSINESS. THIS IS ESPECIALLY TRUE IN THE INTERNET AGE, WHEN IT'S OFTEN POSSIBLE TO GATHER DETAILED INFORMATION ABOUT WHEN CUSTOMERS DO EVERYTHING FROM OPEN EMAILS TO ACCESS PARTICULAR ITEMS ON A COMPANY WEBSITE. THE ROLE OF STATISTICS IN BUSINESS IS IN EVALUATING ALL OF THIS INFORMATION TO DETERMINE WHAT IT SAYS ABOUT THE COMPANY'S OPERATIONS AND STRATEGY.

ONE ROLE OF STATISTICS IN BUSINESS IS INFORMING A MANAGER WORKING ON EMPLOYEE PERFORMANCE MANAGEMENT. A MANAGER COLLECTS DATA ABOUT EMPLOYEE PRODUCTIVITY, SUCH AS THE NUMBER OF TASKS COMPLETED OR THE NUMBER OF UNITS PRODUCED. HE OR SHE MUST ANALYZE DATA TO FIND WAYS IN WHICH AN EMPLOYEE SHOULD IMPROVE TO ACHIEVE MAXIMUM PRODUCTIVITY.

SUSHMA DEY
5TH SEMESTER

STATISTICS IN EDUCATION

Statistics education is the practice of teaching and learning of statistics, along with the associated scholarly research.

Statistics is both a formal science and a practical theory of scientific inquiry, and both aspects are considered in statistics education. Education in statistics has similar concerns as does education in other mathematical sciences, like logic, mathematics, and computer science. At the same time, statistics is concerned with evidence-based reasoning, particularly with the analysis of data. Therefore, education in statistics has strong similarities to education in empirical disciplines like psychology and chemistry, in which education is closely tied to "hands-on" experimentation. Statistics education research is an emerging field that grew out of different disciplines and is currently establishing itself as a unique field that is devoted to the improvement of teaching and learning statistics at all educational levels.

IMPORTANCE OF STATISTICS IN EDUCATION

1. **GROUP COMPARISON: THE ACHIEVEMENTS OF A CLASS ARE NOT UNIFORM IN EVERY SUBJECT. IT IS FOUND THAT ONE CLASS IS PROGRESSING FASTER IS ONE SUBJECT, WHILE ANOTHER IS PROGRESSING IS A DIFFERENT ONE. EVEN THE VARIOUS SECTIONS OF A PARTICULAR CLASS DO NOT PROGRESS UNIFORMLY.**
2. **INDIVIDUAL COMPARISON: STATISTICS HELPS IN THE INDIVIDUAL COMPARISON OF STUDENTS DIFFERING IN RESPECT OF THEIR AGES, ABILITIES AND INTELLIGENCE LEVELS. IT IS STATISTICS WHICH TELLS US WHY THUS STUDENTS WHO ARE SIMILAR IN EVERY OTHER RESPECT YET DO NOT SHOW SIMILAR ACHIEVEMENT IS ONE PARTICULAR SUBJECT.**
3. **EDUCATIONAL AND VOCATIONAL GUIDANCE: EVERY INDIVIDUAL STUDENT DIFFERS FROM OTHERS IN HIS INTELLECTUAL ABILITY, INTERESTS, ATTITUDE AND MENTAL ABILITIES STUDENTS ARE GIVEN EDUCATIONAL AND VOCATIONAL GUIDANCE SO THAT THEY MAKE THE BEST USE OF THESE ABILITIES AND THE PROCESS OF GUIDANCE IS BASED UPON STATISTICS ONLY.**

4. EDUCATIONAL EXPERIMENTS AND RESEARCH: WITH A CHANGE IN PLACE, LINE AND CIRCUMSTANCES, THE AIMS, CURRICULA AND METHODS OF EDUCATION KEEP ON CHANGING. THE WORK OF RESEARCH AND EXPERIMENTATION CANNOT BECOME RELIABLE AND VALID WITHOUT THE USE OF STATISTICS.

5. ESSENTIAL FOR PROFESSIONAL EFFICIENCY: THE TEACHER'S RESPONSIBILITY DOES NOT END WHEN HE TEACHES A PARTICULAR SUBJECT IN THE CLASSROOM. HIS RESPONSIBILITY INCLUDES TEACHING THE STUDENTS, OBTAINING THE DESIRED LEVEL OF KNOWLEDGE FOR HIMSELF AND ASSESSING THE ACHIEVEMENT OF MODIFICATION IN BEHAVIOUR .

MOON JYOTI BARMAN
5TH SEMESTER

BIOSTATISTICS AND GENETICS

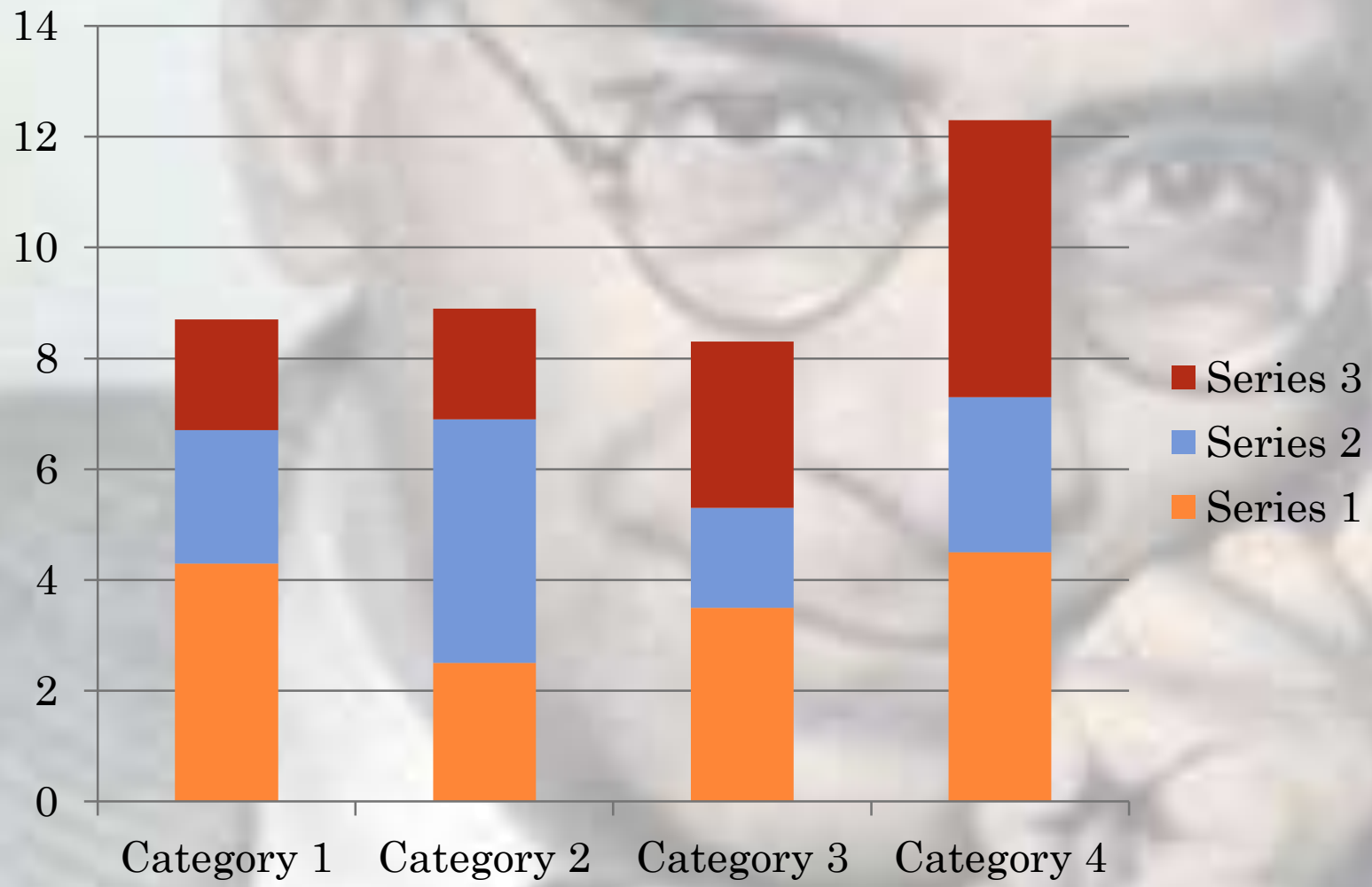
Biostatistics are the development and application of statistical methods to a wide range of topics in biology. It encompasses the design of biological experiments, the collection and analysis of data from those experiments and the interpretation of the results.

Bio statistical modeling forms an important part of numerous modern biological theories. Genetics studies, since its beginning, used statistical concepts to understand observed experimental results. Some genetics scientists even contributed with statistical advances with the development of methods and tools. Gregor Mendel started the genetics studies investigating genetics segregation patterns in families of peas and used statistics to explain the collected data.

IN THE EARLY 1900S, AFTER THE REDISCOVERY OF MENDEL'S MENDELIAN INHERITANCE WORK, THERE WERE GAPS IN UNDERSTANDING BETWEEN GENETICS AND EVOLUTIONARY DARWINISM. FRANCIS GALTON TRIED TO EXPAND MENDEL'S DISCOVERIES WITH HUMAN DATA AND PROPOSED A DIFFERENT MODEL WITH FRACTIONS OF THE HEREDITY COMING FROM EACH ANCESTRAL COMPOSING AN INFINITE SERIES. HE CALLED THIS THE THEORY OF "LAW OF ANCESTRAL HEREDITY". HIS IDEAS WERE STRONGLY DISAGREED BY WILLIAM BATESON, WHO FOLLOWED MENDEL'S CONCLUSIONS, THAT GENETIC INHERITANCE WERE EXCLUSIVELY FROM THE PARENTS, HALF FROM EACH OF THEM. THIS LED TO A VIGOROUS DEBATE BETWEEN THE BIOMETRICIANS, WHO SUPPORTED GALTON'S IDEAS, AS WALTER WELDON, ARTHUR DUKINFIELD DARBISHIRE AND KARL PEARSON, AND MENDELIANS, WHO SUPPORTED BATESON'S (AND MENDEL'S) IDEAS, SUCH AS CHARLES DAVENPORT AND WILHELM JOHANNSEN. LATER, BIOMETRICIANS COULD NOT REPRODUCE GALTON CONCLUSIONS IN DIFFERENT EXPERIMENTS, AND MENDEL'S IDEAS PREVAILED. BY THE 1930S, MODELS BUILT ON STATISTICAL REASONING HAD HELPED TO RESOLVE THESE DIFFERENCES AND TO PRODUCE THE NEO-DARWINIAN MODERN EVOLUTIONARY SYNTHESIS.

DEBRAJ LASKAR
3RD SEMESTER

GRAPHICAL REPRESENTATIONS



STATISTICS IN PHYSICS

Statistical physics is a branch of physics that evolved from a foundation of statistical mechanics, which uses methods of probability theory and statistics, and particularly the mathematical tools for dealing with large populations and approximations, in solving physical problems. It can describe a wide variety of fields with an inherently stochastic nature. Its applications include many problems in the fields of physics, biology, chemistry, neuroscience. Its main purpose is to clarify the properties of matter in aggregate, in terms of physical laws governing atomic motion.

QUANTUM STATISTICAL MECHANICS IS STATISTICAL MECHANICS APPLIED TO QUANTUM MECHANICAL SYSTEMS. IN QUANTUM MECHANICS A STATISTICAL ENSEMBLE (PROBABILITY DISTRIBUTION OVER POSSIBLE QUANTUM STATES) IS DESCRIBED BY A DENSITY OPERATOR S, WHICH IS A NON-NEGATIVE, SELF-ADJOINT, TRACE-CLASS OPERATOR OF TRACE 1 ON THE HILBERT SPACE H DESCRIBING THE QUANTUM SYSTEM. THIS CAN BE SHOWN UNDER VARIOUS MATHEMATICAL FORMALISMS FOR QUANTUM MECHANICS. ONE SUCH FORMALISM IS PROVIDED BY QUANTUM LOGIC.

PRIYANKA SINHA
3RD SEMESTER


PLANTATION
PROGRAMME HELD BY
5TH SEM STUDENTS

CULTURAL RALLY 2020

TEACHERS' DAY 2019

THANK YOU VERY MUCH FOR READING THE E-MAGAZINE NAMED "STATISTA" PUBLISHED BY DEPARTMENT OF STATISTICS, PRAGJYOTISH COLLEGE GUWAHATI-09.