



## **Report: Value Added Course on "Basic Statistical Techniques for Data Analysis and Introduction to Data Mining"**

The Department of Computer Science conducted a VAC on "**Basic Statistical Techniques for Data Analysis and Introduction to Data Mining**" from 13<sup>th</sup> March till 4<sup>th</sup> April, 2023, in offline mode.

Registration for the VAC was open to all students of 4<sup>th</sup> and 6<sup>th</sup> Semester. There were a total of 36 students who registered, out of which 20 were regular for classes. The class comprised of students from various departments, namely, Geography, Physics, Economics, BCA, BSW, Biotechnology and Computer Science.

This is the second year the VAC was conducted, and its content was revised and expanded from the one held last year. The primary goal of the VAC was to introduce students from various disciplines to statistics and its importance to data analysis. Another goal was to inculcate the concepts in a time frame that was not hurried and gave ample time for the participants to look at each topic more minutely. A couple of prerequisites for the course, namely, arithmetic and elementary algebra, were desirable from the participants so that they are able to better appreciate the topics covered. Students were also given appropriate and self-contained handouts to augment the classes.

Each session was at least 60 minutes in duration with a combined time of 15 hours of lectures and problem solving sessions. In addition to this, a comprehensive assignment, requiring not less than 4 hours to complete was given to tie together everything that was taught in the course. At the course end, participants sat for a cumulative test that comprised of objective and problem solving questions.

A total of 15 students completed the course, submitted the assignment and appeared for the test. They were given graded certificates for the work they've put in, with 6 students earning the highest grade of A+.

The instructor for the course, Bertrand Dkhar, is appreciative of the participants' eager and enthusiastic response during the VAC.

It may be mentioned that there was no fee taken from the students.

### **Topics covered during the course:**

1. Concept of Data, Information and Noise
2. The need for Data Science and its application to various fields
3. Classification of data and measurement scales
4. Measures of central tendency, variation and dispersion
5. Correlation Analysis
6. Linear Regression
7. Sampling
8. Introduction to Data Mining

### **Learning Outcomes:**

1. Participants are able to distinguish between data, information and noise.
2. Participants are able to appreciate the usefulness of Data Science in many disciplines.
3. Participants are able to classify data thereby enabling them to formulate appropriate questionnaires for research purposes.

4. Participants are able to collect primary data and process the data using statistical techniques.
5. Participants are able to derive relationships that may exist in the data sets as well as make predictions using correlation analysis and linear regression techniques.
6. Participants are able to choose amongst various sampling techniques for unbiased observations of very large data sets.
7. Participants are able to appreciate the need for Data Mining in this data driven world.

#### **Applicability of the topics learnt in the course:**

*“The knowledge of statistical methods serve as one of the most important tool in modern science, let it be from the most fundamental aspects of the electron to the study of large macroscopic populations. Though being an introductory course on the matter, this value added course checked all the right boxes and the basis formed as a result is truly appreciable.*

*In quantum mechanics we make use of a mathematical function called the Gaussian function to describe a particle's position and momentum via the uncertainty principle, there we make use of statistical analysis such as standard deviation about a maximum point, these topics which were explained to me in the VAC. The teachings have helped me understand my subject with heightened clarity and insight. Furthermore, I will surely be looking forward for other advanced courses on statistical methods by the computer science department.”*

- Calwyn Suchiang, 4<sup>th</sup> Semester, Department of Physics, St. Edmund's College.

#### **Dr. S. Lamare, Principal, interacting with the participants on the final day of the VAC**

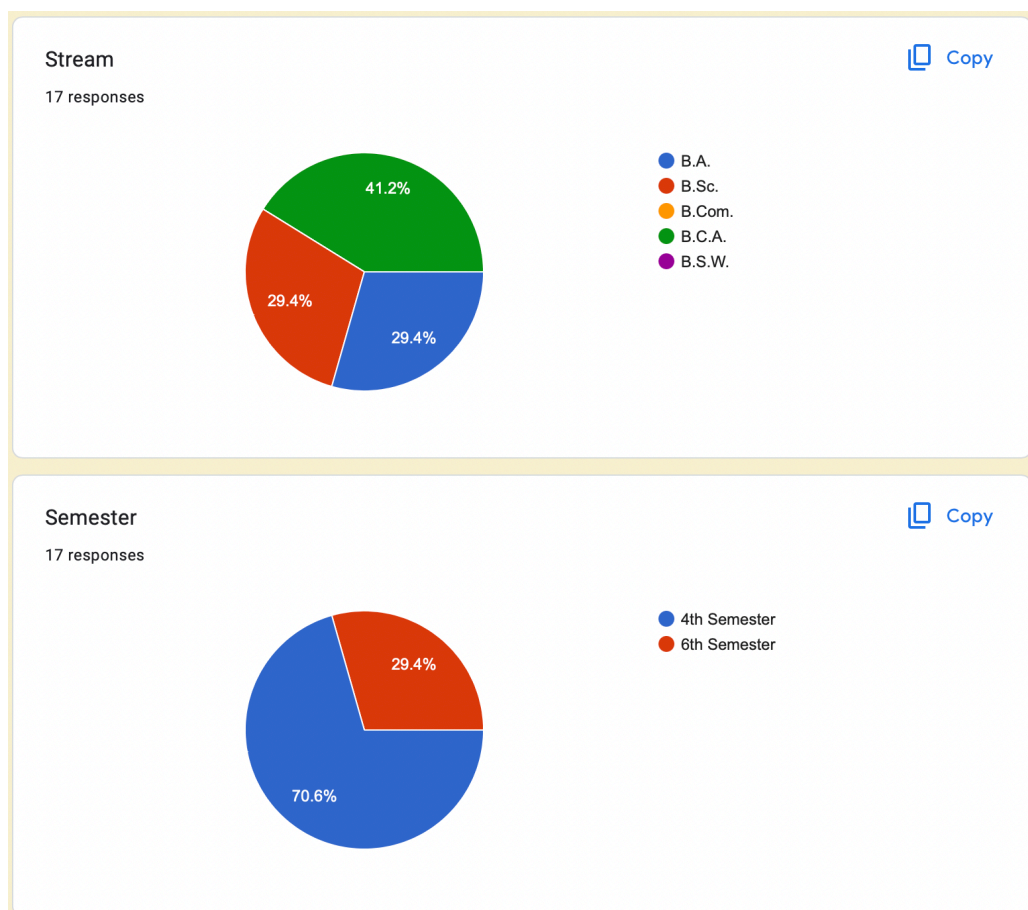






**L2R:** Bertrand Dkhar, Kahor Kasomwoshi, Fedalick Syngkon, Sheetal Chettri, Marina Singson, Pradakshina Borbora, Tanvi Farzeen, Angshita Kashyap, Kerrimeka Mawroh, Melody Narzary, Lapyndapbiang Kharumnuid, Dr. S. Lamare, Animegh Boro, Partha Pratim Barman, Sumana Sarkar, Calwyn Suchiang.

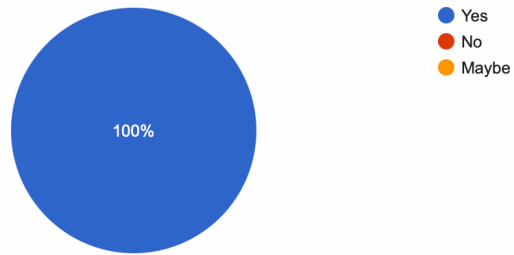
## FEEDBACK



Did the VAC meet your expectations?

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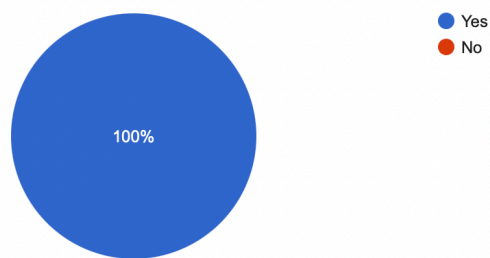
17 responses



Will the topics that were taught be useful and applicable in your (honours) subject?

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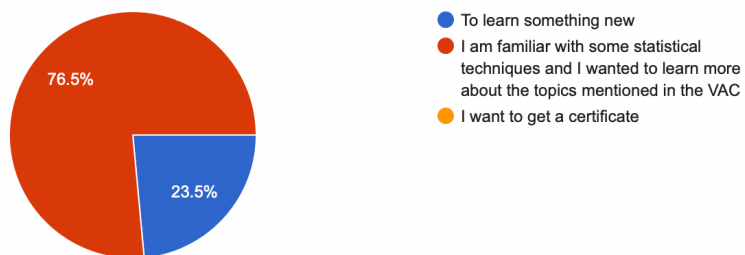
17 responses



What made you want to attend the VAC on "Basic Statistical Techniques for Data Analysis and Introduction to Data Mining" ?

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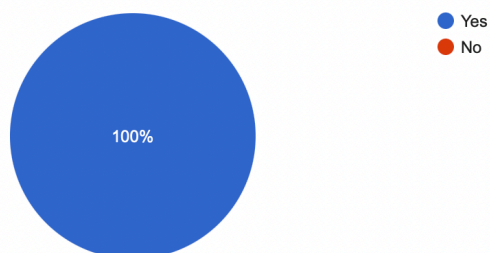
17 responses



Did you learn something new during the VAC?

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17 responses

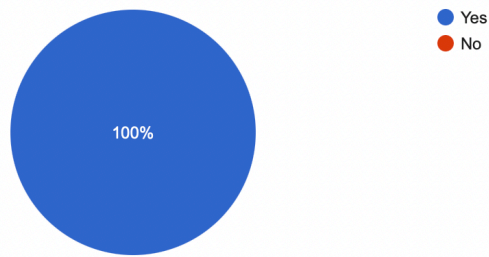




Are you now able to look at data differently (i.e., categorise and analyse)?

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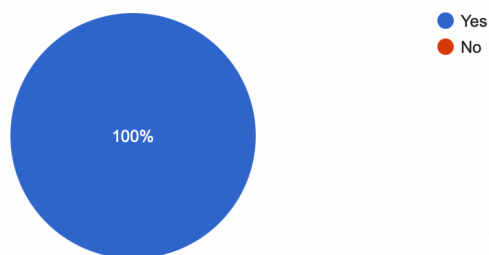
17 responses



Were the topics taught with examples that you were able to understand?

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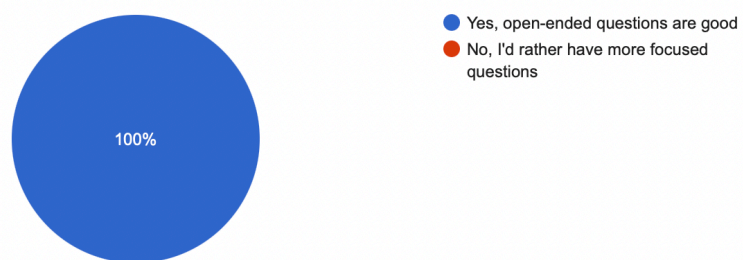
17 responses



Do you like the open ended nature of the questions discussed in class and assignment?

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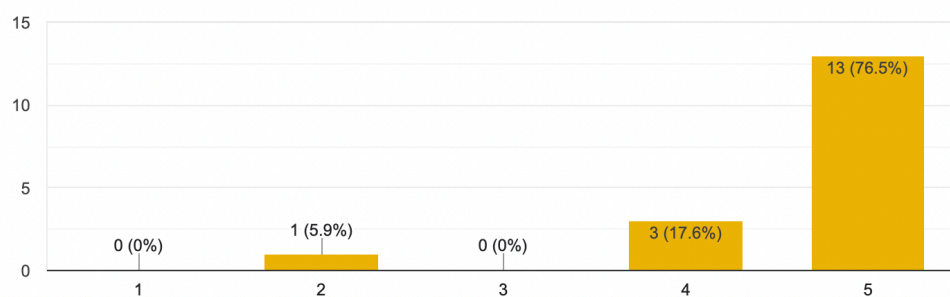
17 responses



Was the reading material provided by the instructor easy to understand?

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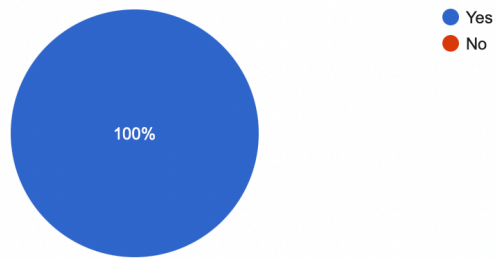
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Was the instructor able to effectively communicate the subject material?

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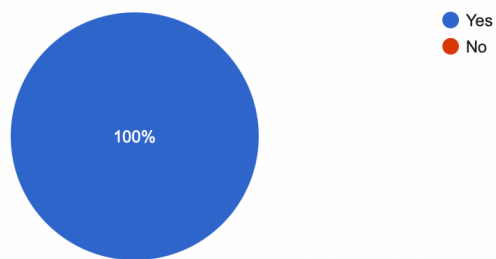
17 responses



Did the instructor answer questions from you (or your classmates) comprehensively?

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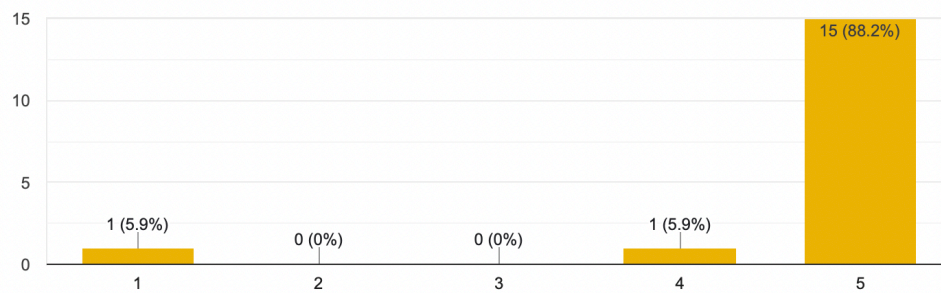
17 responses



What is your overall rating for the instructor?

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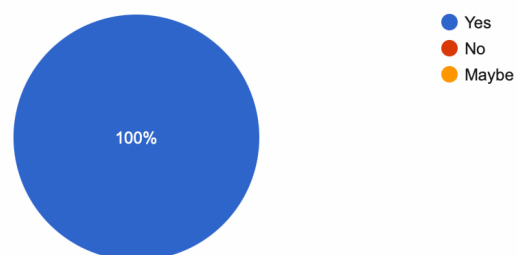
17 responses



After attending the VAC, do you feel Statistics and Data Science is an important subject to learn/understand?

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17 responses



Kindly share a few words about your experience (and suggestions) in this VAC.

17 responses

Before attending the VAC I had heard of data mining since it's there in our last semester but never knew what it was. However before starting the VAC I researched a bit and realised it's much like statistics. I had statistics in class 11-12 and many of the topics like standard deviation and variance but for some reason or the other things went over my head back then. But now, everything was so crystal clear that I feel i can solve any kind of statistical problem now. I don't know whether it was because of my improved attention or the way things were explained but whatever it is, I am GLAD I was a part of the VAC conducted by the Computer Science department and Sir Bertrand Dkhar in particular. Forever grateful <3

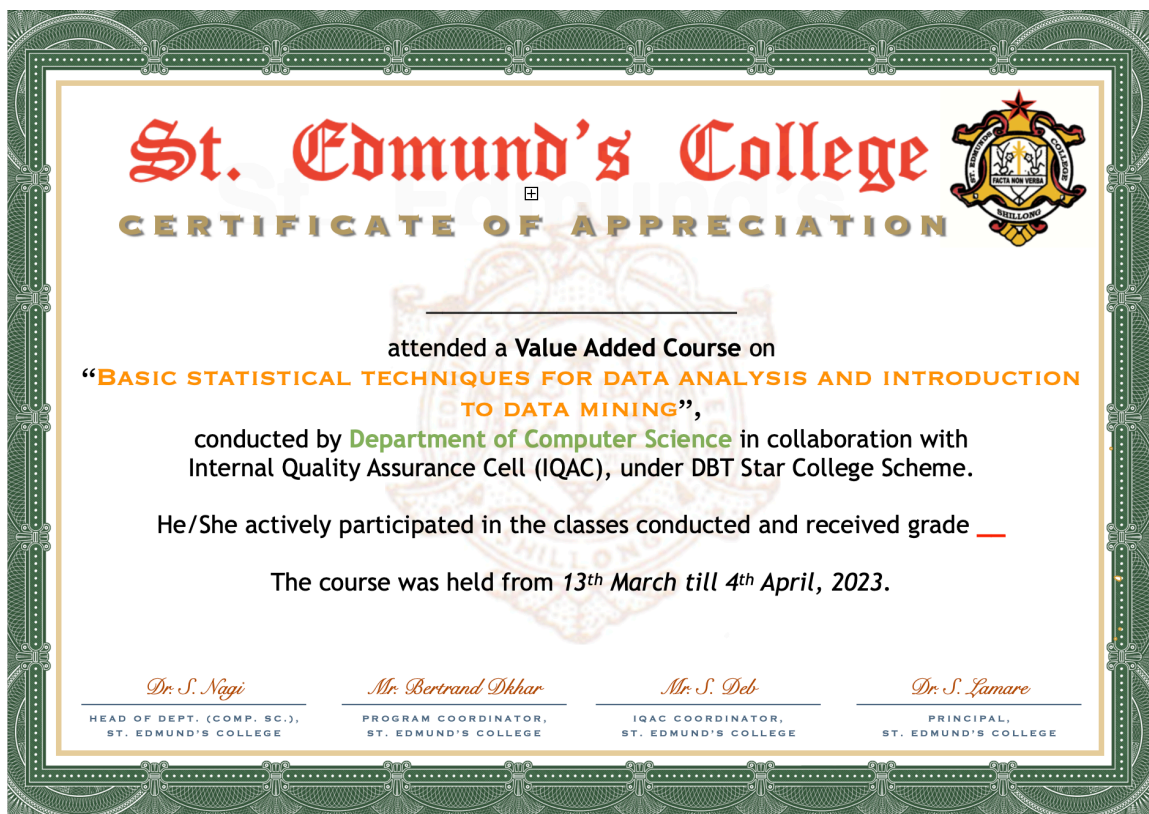
It has been a great experience as well as an honour to be able to learn from such an amazing teacher. Looking forward to more such courses like this.

The active interaction between the instructor and the students in class has actually helped me gain a lot of confidence as I participate along with them; provided the instructor has done a great job in teaching us.

I was really happy to attend the class. It was interesting and easy to understand. I would love attend more such courses.

The teacher made the topics seem so easy to understand.

### SAMPLE CERTIFICATE



Contributors to the report:

1. Calwyn Suchiang, 4<sup>th</sup> Semester, Department of Physics.
2. Dr. Amplify Sawkmie, Department of Mathematics.
3. Bertrand Dkhar, Department of Computer Science.





## DEPARTMENT OF COMPUTER SCIENCE

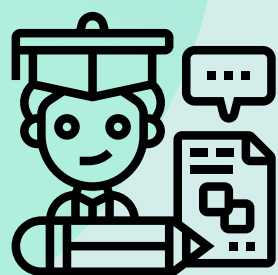
### VALUE ADDED COURSE

# BASIC STATISTICAL TECHNIQUES FOR DATA ANALYSIS AND INTRODUCTION TO DATA MINING



## • KEY TOPICS

- Data Science and its applications
  - Measures of central tendency
  - Measures of dispersion
  - Correlation Analysis
  - Regression
  - Data Mining and its applications
- **Participants:** 4th and 6th Semester students, on first come first served basis.
  - **Prerequisites:** Elementary arithmetic and algebra
  - **Evaluation:** Assignments and class tests
  - **Graded e-certificates** will be awarded on successful completion of the course
  - **Useful for:** Participants studying Research Methodology
  - **Fee:** Nil



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13th - 31st March, 2023 (excluding Saturdays, Sundays and holidays)



2:30 pm - 3:30 pm



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St. Edmund's College, Shillong.



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