Discrete Mathematics

Lecture 1: Introduction

Instructor: Sourav Chakraborty

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- Problem solving is a big part in the understanding of this course.

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- You should be honest and solve them yourselves, without taking help from others. Discussion on these problems will not be done on the forum till the due date of that assignment. After the due date is over you are free to discuss with the TA and/or fellow students.

Final Exam and Assessment

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- For the final evaluation 75% will be from the final exam and the rest from the bi-weekly assignments.

Books and references

I will not be following any particular book for this course. But whatever I will be teaching is available in any of the standard discrete mathematics textbooks.

Important Questions?

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- What is discrete mathematics?
- Why to study "discrete mathematics" as a subject separately?
- How is "discrete mathematics" relevant to the world of mathematics as a whole and in particular to us?

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- In other words, discrete object is something that is countable.

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- $(x, y) \in \mathbb{R}^2$ such that $y = x^3$.

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  - Permutation and Combination.

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- Discrete Mathematics is a foundation course for mathematics and computer science.
- Many of the problems you will face in your life will involve discrete objects.

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- Every problem is unique and hence there is no fixed algorithm for solving them. One needs to use different techniques and tools that one learns and use once intelligence and creativity to solve the problems. The only way to master this is by solving lots of different types of problems. Thus we will solve a lot of problems in this course using the different techniques we learn.

Plan for rest of the week

- Introduction to Propositional Logic - it would help us to set up the mathematical foundation for the rest of the course.
- Introduction to Number Theory - we will play with the most important of all discrete object, the integers.
- Introduction to Set and Relations and Functions.