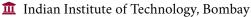
# Aryaman Maithani

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https://aryamanmaithani.github.io/





### **Education**

2018 - 2021*	Indian Institute of Technology Bombay, India	9.71 CPI
	B.S. Mathematics	
2016 – 2018	Nehru Smaraka Vidyalaya Intermediate/+2	94.00%
2016	Ryan International School	94.67%

# Reading Projects

Guide: Prof. Ananthnarayan Hariharan | IIT Bombay **Representation Theory** 2021 Read Representation Theory of Finite Groups by Benjamin Steinberg and covered topics such as Maschke's Theorem, the orthogonality relations, characters, permutations and regular representations, induction of representations, dimension theorem, representations of dihedral and symmetric groups and applications to group theory such as Burnside's pq-theorem. The report can be found here.

Algebraic Topology 2020

Guide: Prof. Rekha Santhanam | IIT Bombay Read homotopy theory including theorems like Van Kampert Theorem, existence of a universal covering space, Galois correspondence for covering spaces and applications to group theory. Also read homology theory and applications such as invariance of domain, degree of maps, hairy ball theorem as well as CW complexes. The report and related presentation can be found here.

Primes is in P Guide: Prof. Ronnie Sebastian | IIT Bombay 2020 Read the paper PRIMES is in P by Manindra Agrawal, Neeraj Kayal, Nitin Saxena about the AKS **Algorithm** and wrote a report on that, which can be found at the end of notes here.

**Posets** Guide: Prof. Koushik Saha | IIT Bombay 2019 Read about posets from Enumerative Combinatorics by Richard P. Stanley and gave a presentation on it as part of extra reading in Combinatorics, which can be found here.

**Topology - Classification of Surfaces** Guide: Senior Student | IIT Bombay 2019 Read about Topology and made a report that contains an introduction to topology and a proof of the Classification of Surfaces, which can be found here.

## **Academic Achievements**

Department Rank 1 in the Mathematics Department. 2021

Awarded AP grade in

MA 403 (Real Analysis), awarded to 2 out of 70 students. 2019

MA 419 (Basic Algebra), awarded to 1 out of 70 students. 2019

CS 228 (Logic for CS), awarded to 2 out of 132 students. 2019

CS 101 (Computer Programming), awarded to 5 out of 663 students. 2018

# **Academic Achievements (continued)**

- Achieved All-India Rank 595 out of 1,000,000 participants in JEE (Main) 2018.
- 2018 Achieved All-India Rank **742** out of 165,000 participants in **JEE (Advanced) 2018**.
- Secured a seat in **Chennai Mathematical Institute (CMI)** on the basis of my performance in its entrance exam.
- Secured an All-India Rank of 147 out of 50,000 in the **Kishore Vaigyanik Protsahan Yojana** (KVPY) 2017 scholarship exam.
- A recipient of the KVPY fellowship offered by the **Indian Institute of Science** (IISc) and attended the Vijyoshi Camp conducted in IISc.

## **Select Courses Undertaken**

Mathematics Foundational Mathematics and Proof Writing, Calculus, Linear Algebra, Ordinary Dif-

ferential Equations, Real Analysis, Complex Analysis, Combinatorics, Basic Number Theory, Multivariable calculus, Topology, Measure Theory, Group Theory, Ring The-

ory, Galois Theory, Module Theory, Theory of Free Resolutions

Computer Science Computer Programming and Utilisation, Logic for CS, Topics in Mathematical Foun-

dations of Formal Verifications, Data Structures and Algorithms

# **Teaching**

2019-2021 Entrusted with the responsibility of being a Teaching Assistant in IIT Bombay for the following courses

Year	Course	Course Instructor
2021	MA 106, Linear Algebra	Prof. Sudhir R. Ghorpade
2020	MA 109, Calculus I	Prof. Ravi Raghunathan
2020	MA 205, Complex Analysis	Prof. Sudarshan R. Gurjar
2020	MA 108, Ordinary Differential Equations	Prof. Preeti Raman
2020	MA 106, Linear Algebra	Prof. Jugal K. Verma
2019	MA 105, Calculus	Prof. Sudhir R. Ghorpade

This involved

- conducting tutorial sessions for a batch of 50 students throughout the course and helping them clear conceptual doubts through personal interaction,
- correction of answer sheets,
- creating webpages containing compilation of personal solutions, extra questions, and relevant resources which was used by 1400+ freshmen.

The latest three courses were conducted completely in online mode.

- Conducted nine sessions for teaching concepts of Computer Programming, Calculus, Linear Algebra, Complex Analysis and helping in solving doubts, organised by the Student Support Services, IIT Bombay.
- Completed 80 hours of community service by teaching in NGOs as a volunteer of National Service Scheme, IIT Bombay.
- 2018 Conducted a help session on *proof-writing* for fellow classmates upon request by instructor.
- 2018 Was a speaker for two help sessions for CS 101 conducted by the PG Academic Council.
- Mentored a team of students at the Code Camp organised by CodePrompt, Internet Academy in association with the Web and Coding Club, IIT Bombay.

# **Miscellaneous**

### Maths and Physics Club, IIT Bombay

- Conducted activities in a team of 7 to foster enthusiasm in mathematics and physics, tending to a community of 400 500 in campus with an online presence of over 8000.
- Worked in conducting of Summer Of Science 2019, a novel initiative through which over 400 students got an opportunity to pursue a reading project in a topic of their interest, under the guidance of over 120 senior student mentors.
- Conducted the quizzing event Bazinga! Maths which involved hosting as well as creating the question paper for the same.

#### ■ Mathematics StackExchange

Aryaman Maithani

Have garnered over 8000 reputation on Mathematics StackExchange and reached over 18000 people.

#### **■** Project Euler

Project Euler is a series of challenging mathematical/computer programming problems that will require more than just mathematical insights to solve. Although mathematics will help you arrive at elegant and efficient methods, the use of a computer and programming skills will be required to solve most problems.

Have solved over 175 questions on Project Euler.

### **Technical Skills**