

# Department Mathematics

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## **LEARNING OUTCOMES**


### **Mathematics (Honours & Honours with Research) under CCF, 2022**

The Mathematics Honours program under the Curriculum and Credit Framework (CCF) 2022 at the University of Calcutta is structured to provide students with a comprehensive understanding of both theoretical and applied mathematics. The key learning outcomes of this program include:

- **Foundational Knowledge:** Students will gain a solid foundation in various branches of mathematics, including calculus, algebra, geometry, differential equations, and real analysis.
- **Analytical and Problem-Solving Skills:** The program emphasizes the development of analytical thinking and problem-solving abilities, enabling students to tackle critical mathematical problems effectively.
- **Application of Mathematical Concepts:** Learners will be equipped to apply mathematical principles to real-world scenarios, enhancing their ability to model and solve practical problems across various disciplines.
- **Research Competency:** The curriculum is designed to prepare students for research-oriented careers by fostering critical thinking and the ability to engage in independent mathematical investigations.
- **Technological Proficiency:** Students will develop skills in using mathematical software and programming languages, such as Python and C, which are integral tools for modern mathematical analysis and research.
- **Communication Skills:** The program aims to enhance students' ability to communicate mathematical ideas clearly and effectively, both in written and oral.
- **Ethical and Professional Development:** Emphasis is placed on understanding the ethical implications of mathematical work and fostering professionalism in academic and applied settings.

These outcomes are designed to ensure that graduates of the Mathematics Honours program are well-prepared for advanced studies, research opportunities, and professional roles that require strong mathematical acumen.



  
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## **LEARNING OUTCOMES**

### **Mathematics (Honours) under CBCS**

*The Mathematics Honours program under the Choice Based Credit System (CBCS) at the University of Calcutta is designed to provide students with a comprehensive understanding of mathematical concepts, theories, and applications. The learning outcomes for this program include:*

- **Analytical and Critical Thinking:** Students will develop the ability to think logically and critically, enabling them to approach complex mathematical problems systematically.
- **Problem-Solving Skills:** Graduates will acquire proficiency in identifying, formulating, and solving mathematical problems using appropriate methods and tools.
- **Theoretical Knowledge:** Students will gain a deep understanding of core areas in mathematics, including calculus, algebra, geometry, differential equations, and real analysis.
- **Application of Mathematics:** Learners will be equipped to apply mathematical principles to model and solve real-world problems in various fields such as physics, engineering, economics, and computer science.
- **Research and Development:** The program prepares students for further studies and research in mathematics and related disciplines, fostering a foundation for innovation and development.
- **Communication Skills:** Students will learn to present mathematical ideas clearly and precisely, both in written and oral forms, facilitating effective communication of complex concepts.
- **Ethical and Professional Understanding:** The curriculum emphasizes the importance of ethical practices and professionalism in mathematical work and research.

These outcomes aim to produce graduates who are not only proficient in mathematical theories but also capable of applying their knowledge to solve practical problems, contributing effectively to academia, industry, and society.



*K. C. Banerjee*  
**Signature of HOD**

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