SAYANTANI BHATTACHARYA

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EDUCATION

Auburn University, Alabama, USA   August 2023 - current
PhD in Mathematics.   *(CGPA: 3.56)*

Tezpur University, Assam   2018 - 2020
Masters in Mathematics.

Chennai Mathematical Institute, Chennai   2015-2018
Bachelors in Mathematics and Computer Science(Dual Degree).

EMPLOYMENT

Graduate Teaching Assistant (GTA)   August 2023 - current
Department of Mathematics, Auburn University.

RESEARCH INTEREST

Graph Theory and Combinatorics.

TEACHING EXPERIENCE

1. Graduate Teaching Assistant, Auburn University, AL, USA.

- *MATH 2650 (Linear Differential Equations): GTA.*   Fall 2023

- *MATH 1610, 1617 (Calculus I): GTA.*   Spring 2024

- *MATH 1000/1120/30/50 & 2650 : GTA.*   Summer 2024, 2nd Mini Semester

- *MATH 1000.005, 1000.006 (College Algebra) : Instructor of Record.*   Fall 2024

- *MATH 1610.R15, 1610.R16 (Calculus I) : Recitation Leader.*   Spring 2025

MASTERS PROJECT

Title : **An Introduction to Manifolds.**
Supervisor : Dr. Deepjyoti Goswami.
Duration : Jan-April, 2020. Tezpur University.
Books Covered :

- Introduction to Manifolds, Loring W. Tu.
- Introduction to Smooth Manifolds, by J. M. Lee.

RELEVANT COURSES (MATHEMATICS)

- **Ph.D. coursework Auburn University:**
  1. **Spring 2025:**
     - Advanced Topics in Graph Theory. (MATH 7750)
     - Matroid Theory. (MATH 7970)
     - Homological Algebra I. (MATH 8310)
     - Discrete Geometry and Convexity II. (MATH 7120)
  2. **Fall 2024:**
     - Design Theory. (MATH 6770)
     - Ring Theory. (MATH 7340)
     - Discrete Geometry and Convexity I. (MATH 7110)
  3. **Spring 2024:**
     - Advanced Topics in Graph Theory. (MATH 7750)
     - Algebra II. (MATH 7320)
     - Applied Mathematics II. (MATH 7010)

4. **Fall 2023:**
   - Graph Theory. (MATH 7700)
   - Algebra (Matrices and Groups). (MATH 7310)
   - Applied Mathematics. (MATH 7000)
   - Methods in Combinatorics. (Special Topics: MATH 7970)

- **M.Sc. (Masters) degree and B.Sc. (Bachelors) degree:**
  - Masters:
    * Linear Algebra and Abstract Algebra
    * Real Analysis and Complex Analysis
    * Topology and Advanced Topology I
    * Ordinary Differential Equations
    * Partial Differential Equations
    * Measure Theory
    * Introduction to Functional Analysis
    * Fourier Analysis
  - Bachelors:
    * Discrete Mathematics
    * Multivariate Calculus
    * Reflection Groups
    * Linear Groups
    * Graduate Analysis I and II

- **(Others) Ph.D. Coursework in Tezpur University: (Nov 2021-June 2023, Department of Mathematical Sciences)**
  - Matrix Analysis and Non-Negative Matrices
  - Graphs and Matrices

FELLOWSHIPS

- **Graduate Teaching Assistantship (GTA) and Auburn University Graduate Student Fellowship**, at Auburn, AL, USA starting Fall 2023.
- Qualified **Graduate Aptitude Test in Engineering (GATE)** exam in **2021**.
- Qualified **Council of Scientific and Industrial Research (CSIR) NET Examination with Junior Research Fellowship (JRF) for Ph.D.** in **2019**.
- Received **INSPIRE SHE (Scholarship for Higher Education) Fellowship** provided by **Department of Science and Technology (DST), India**, batch of **2015**.
- **Institutional Fellowship at Undergraduate level**, Chennai Mathematical Institute.
- Qualified **IIT-JEE Main**, **JEE Advanced** and **WBJEE** for IIT-IISER level college entrances in **2015**.

CONFERENCES AND WORKSHOPS

- Attended the **"Atlanta Lecture Series 29"** at **Georgia State University** on November 2nd and 3rd, 2024.
- Attended the **"33rd Cumberland Conference"** at **Mississippi State University** on May 18th and 19th, 2024.
- Attended the **"Shanks Workshop on Combinatorics and Graph Theory"** at the **Vanderbilt University** on April 13-14, 2024.
- Attended **"Workshop to Forge the Yellowhammer Network of Women in the Mathematical Sciences"** at the **University of Alabama, USA** on February 10th, 2024.
- Attended a two-days mini-course on **"Representation of finite groups: a basic course"** by **Prof. Gurmeet K. Bakshi**, organized by **Indian Women and Mathematics (IWM)**, on 18th-19th February 2023, online mode.
- **Advanced Instructional School on Advanced Linear Algebra (AIS-ALA 2022)** conducted by **ATM Schools, National Centre for Mathematics, A joint centre of IIT Bombay and TIFR, Mumbai,** during 9th May-28th May, 2022.

- Attended the **International Conference on "Emerging trends in Pure and Applied Mathematics"** held on March 12-13, 2022 in blended mode, organized by the Department of Applied Sciences, School of Engineering in association with the Department of Mathematical Sciences, School of Sciences, Tezpur University.
- Attended a two-days online workshop on **"Differential Equations and Their Application"** during 27th -28th November 2020.
- Attended a webinar titled **"Combinatorial applications of some topological theorems"** delivered by **Prof. Ravindra B. Bapat** (Indian Statistical Institute, Delhi) on November, 2020.
- Participated in an e-talk entitled **"Ergodic Correspondence and Combinatorics"** by the Abel Prize Laureate-2020, **Prof. Hillel Furstenberg** on November 5th, 2020.
- Attended a seminar titled **"Compact Lie groups"** delivered by **M.S. Raghunathan**, NCM, Mumbai, on 13th February, 2018. at CMI.
- Attended a seminar titled **"Topological connectivity of graph coloring complexes of certain product graphs"** by **Samir Shukla**, ISI, Bengaluru on 7th February, 2018. at CMI.
- Attended R.K. Rubugunday Distinguished Lecture titled **"The Grothendieck inequality"** by **Prof. Gadadhar Misra** from IISc, Bangalore on 18th January, 2017 at CMI.
- Attended a seminar titled **"Math meets the real world"** by **Prof. Po-Shen Loh**, CMU on 16th November, 2015 at CMI.

TECHNICAL SKILLS

- **Languages**: Bengali (native), Hindi, English (professional fluency).
- **Coding**: C, Python, SageMath, LaTeX, MATLAB.
- **WebDev**: HTML, CSS, PSPP.

SERVICES

Vice President   Nov 2023-current
College of Science & Mathematics International Students Association (CISA)
Auburn University, AL

Treasurer   May 2024-current
Association for Women in Mathematics (AWM) at Auburn University

Mathematics Department Representative   Oct 2023-current
Discovering COSAM e-Magazine
Auburn University, AL