

Ekansh Jauhari

Curriculum Vitae

Department of Mathematics
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🌐 Website

Research Interests

Algebraic topology, geometric topology, and their applications: symmetric products of CW complexes, topological robotics, symplectic topology, Kähler geometry, Čech and Vietoris–Rips complexes.

Education

- Aug 2022–Present **Ph.D. Mathematics**, University of Florida, Gainesville, FL.
Advisor: Dr. Alexander N. Dranishnikov
CGPA: 3.97/4.00
- Aug 2022–May 2024 **M.S. Mathematics**, University of Florida, Gainesville, FL.
- Aug 2020–May 2022 **M.Sc. Mathematics**, Indian Institute of Technology Delhi, New Delhi.
- Jul 2017–Aug 2020 **B.Sc. (Hons.) Mathematics**, Hansraj College, University of Delhi, New Delhi.

Employment

- Jan 2025–Present **Instructor of Record**, Department of Mathematics, University of Florida.
- Aug 2022–Jul 2023, May 2024–Dec 2024 **Teaching Assistant**, Department of Mathematics, University of Florida.
- Aug 2023–Apr 2024 **Research Assistant**, Department of Mathematics, University of Florida.

Research

Publications and Preprints

- Under review L. F. Di Cerbo, A. Dranishnikov, E. Jauhari, Curvature, macroscopic dimensions, and symmetric products of surfaces. Preprint, arXiv:2503.01779 [math.GT] (2025), pp. 41.
- H. Adams, E. Jauhari, S. Mallick, Homotopy connectivity of Čech complexes of spheres. Preprint, arXiv:2502.00122 [math.AT] (2025), pp. 16.
- E. Jauhari, Distributional Lusternik–Schnirelmann category of manifolds. Preprint, arXiv:2408.11036 [math.GT] (2024), pp. 31.
- Published/Accepted E. Jauhari, Intertwining category and complexity. To appear in *Homology Homotopy Appl.* [arXiv].
- E. Jauhari, On sequential versions of distributional topological complexity. *Topology Appl.* **363** (2025), 109271, pp. 28. [arXiv] [doi].
- A. Dranishnikov, E. Jauhari, Distributional topological complexity and LS-category. In *Topology and AI*, ed. M. Farber and J. González, EMS Ser. Ind. Appl. Math., 4, EMS Press, Berlin, 2024, pp. 363–385. [arXiv] [doi].

Master’s Project

- Jun 2021–May 2022 *Topological groups, Lie groups, and their representations*. Supervised by Dr. N. Shra-
van Kumar, Department of Mathematics, Indian Institute of Technology Delhi.

Summer Projects

- May 2021–Oct 2021 *Theory of linear representations of finite groups and $\mathbb{C}[G]$ -modules*. Supervised by Dr.
Manoj K. Yadav, Department of Mathematics, Harish-Chandra Research Institute.
- Jun 2021–Aug 2021 *Homotopy theory and homology*. Supervised by Dr. Tomer M. Schlank, Einstein
Institute of Mathematics, Hebrew University of Jerusalem.

Honors and Awards

- Dec 2024 **UF CLAS Graduate Travel Award**, awarded by the *College of Liberal Arts and Sciences (CLAS), University of Florida* to participate in the AMS 2025 Spring Southeastern Sectional Meeting, Clemson University.
- Apr 2024 **Robert Long Prize**, awarded by the *Department of Mathematics, University of Florida* for best essay in Robert Long Essay Competition 2024.
- Apr 2023 **Robert Long Prize**, awarded by the *Department of Mathematics, University of Florida* for best essay in Robert Long Essay Competition 2023.
- Oct 2022 **Prof. M. C. Puri Memorial Award**, awarded by the *Indian Institute of Technology Delhi* for scoring the highest CGPA in M.Sc. Mathematics in the 2020 – 2022 batch.
- Apr 2022 **Departmental Fellowship**, awarded by the *Department of Mathematics, University of Florida* for showing promise in the Ph.D. application.
- Mar 2022 **Junior Research Fellowship (JRF)**, awarded (jointly) by the *University Grants Commission* and the *Council of Scientific & Industrial Research, Government of India* for outstanding performance in the Joint CSIR-UGC National Eligibility Test (did not avail).
- Mar 2021 **Best Paper Award**, awarded by the *Government of Uttar Pradesh, India* for best performance in Young Scholars' National Research Writing Competition 2021.
- Feb 2021 **Certificate of Merit**, awarded by *Hansraj College, University of Delhi* for scoring the highest CGPA in B.Sc. (Hons.) Mathematics in the 2017 – 2020 batch.
- Oct 2017 **INSPIRE Scholarship**, awarded by the *Department of Science and Technology, Government of India* for being in the top 1 percentile merit holders of the All India Senior School Certificate Examination 2017.

Experience

Instructor of Record

- Jan 2025–Apr 2025 **MAC 1105** *Basic College Algebra*, Spring '25 (online).

Teaching Assistant

- Aug 2024–Dec 2024 **MAC 1140** *Precalculus Algebra* (online); **MAC 1147** *Precalculus Algebra and Trigonometry*, Fall '24.
- May 2024–Aug 2024 **MAC 2233** *Survey of Calculus I*, Summer C '24 (online).
- May 2023–Aug 2023 **MAP 2302** *Elementary Differential Equations*, Summer C '23 (online).
- Aug 2022–Apr 2023 **MAC 2311** *Analytic Geometry and Calculus I*, Fall '22 and Spring '23.

Subject Matter Expert

- Apr 2021–May 2022 **Advanced Mathematics**, Bartleby Tech. Pvt. Ltd., answered 700 questions.
- Jan 2021–Mar 2021 **Advanced Mathematics**, Chegg India Pvt. Ltd., answered 80 questions.

Invited and Contributed Talks

Research Talks

- 13th Apr 2025 *Curvature and macroscopic dimensions of symmetric products of surfaces*, Graduate Student Topology and Geometry Conference, Department of Mathematics, Indiana University.
- 25th Mar 2025 *On symmetric products of orientable surfaces*, Topology and Geometry Seminar, Department of Mathematics, University of Florida.
- 9th Mar 2025 *Homotopy connectivity of Čech complexes of spheres*, Invited talk in the Special Session on “Topological Data Analysis, Theory and Applications”, AMS 2025 Spring Southeastern Sectional Meeting, Clemson University.
- 8th Mar 2025 *Topology and geometry of symmetric products of Riemann surfaces*, Invited talk in the Special Session on “Invariants in Geometric Topology: Low Dimensions and Beyond”, AMS 2025 Spring Southeastern Sectional Meeting, Clemson University.
- 20th Nov 2024 *Topological complexity of intertwining motion*, Invited talk in the Graduate Mathematics Association Colloquium, University of Florida.

- 24th Oct 2024 *On some distributional and intertwining invariants of manifolds*, Invited talk in the Topological Complexity Seminar of the Applied Algebraic Topology Research Network (online). [YouTube].
- 1st Oct 2024 *On distributional Lusternik–Schnirelmann category of manifolds*, Topology and Dynamics Seminar, Department of Mathematics, University of Florida.
- 10th Apr 2024 *On sequential versions of distributional topological complexity*, Online Mathematics Seminar, Indian Institute of Science Education and Research Mohali (online).
- 22nd Mar 2024 *A new version of topological complexity and LS-category*, Topology and Related Topics Seminar, Department of Mathematics, Indian Institute of Technology Bombay (online).
- 20th Feb 2024 *Distributional topological complexity and its sequential versions*, Topology and Dynamics Seminar, Department of Mathematics, University of Florida.
- 31st Jan 2024 *Topology and robotics: a new approach to motion planning*, Invited talk in the Graduate Mathematics Association Colloquium, University of Florida.

Other Talks

- 11th & 18th Feb 2025 *Cohomology of symmetric products of non-orientable surfaces: I and II*, Graduate Student Topology Seminar, Department of Mathematics, University of Florida.
- 13th & 20th Sep 2024 *Symplectically aspherical manifolds and groups*, Graduate Student Topology Seminar, Department of Mathematics, University of Florida.
- 17th & 24th Oct 2023 *Topology of symmetric products: I and II*, Graduate Student Topology Seminar, Department of Mathematics, University of Florida.
- 7th Mar 2023 *H-spaces and Hopf algebras*, Graduate Student Topology Seminar, Department of Mathematics, University of Florida.
- 18th Apr 2022 *Lie groups and their representations*, M.Sc. project presentation II, Department of Mathematics, Indian Institute of Technology Delhi.
- 11th Nov 2021 *Topological groups and their representations*, M.Sc. project presentation I, Department of Mathematics, Indian Institute of Technology Delhi (online).

Conferences and Workshops attended

- 11th – 13th Mar 2025 22nd Graduate Student Topology and Geometry Conference, organized by Indiana University in **Bloomington, IN**.
- 8th – 9th Mar 2025 AMS 2025 Spring Southeastern Sectional Meeting, organized by the American Mathematical Society and Clemson University in **Clemson, SC**.
- 27th – 29th Sep 2024 *Big Ideas in Dynamics and Geometry*, organized by the University of Illinois, Chicago in **Chicago, IL** (attended online).
- 10th Jan 2024 GEOTOP-A International Conference, thematic sessions on *Topological Complexity and LS-Category*, organized in **Mérida, México** (attended online).
- 3rd – 4th Nov 2023 UF/FSU Topology and Geometry Meeting, organized by Florida State University in **Tallahesse, FL**.
- 24th – 28th Jul 2023 Tech Topology Summer School on the L-space Conjecture, organized by Georgia Institute of Technology in **Atlanta, GA**.
- 26th – 30th Jun 2023 Summer School on Scissors Congruence, Algebraic K-theory, and Trace Methods, organized by Indiana University in **Bloomington, IN**.
- 26th – 28th May 2023 Graduate Student Conference in Algebra, Geometry, and Topology, organized by Temple University in **Philadelphia, PA**.
- 11th – 12th Mar 2023 Southern Regional Number Theory Conference, organized by Louisiana State University in **Baton Rouge, LA**.
- 11th – 12th Feb 2023 South Central Topology Conference II, organized by Texas State University in **San Marcos, TX**.
- Jun 2021–Jul 2021 Mathematics Training and Talent Search (Level 2) Camp, organized (online) by the MTTS trust in **India**.

Exams Qualified

Ph.D. Topology	High Pass, <i>May 2023</i> .
CSIR–UGC NET	All India Rank 63 (JRF), <i>Feb 2022</i> .
GATE (Math)	All India Rank 199, <i>Feb 2022</i> .
TOEFL iBT	111 (Reading: 29, Listening: 27, Speaking: 25, Writing: 30), <i>Aug 2021</i> .
GRE General	323 (Verbal: 155, Quantitative: 168, Analytic: 4.5), <i>July 2021</i> .
IIT JAM (Math)	All India Rank 89, <i>Feb 2020</i> .

Service

Academic

Dec 2024–Present	Reviewer , <i>zbMATH Open</i> (Zentralblatt MATH), Springer. Reviewed 1 publication.
Aug 2024–Dec 2024	Organizer , <i>Graduate Student Topology Seminar</i> , University of Florida.
Aug 2023–Present	Mentor , to graduate students <i>Sucharita Mallick and Harris Barton</i> , University of Florida.

Extracurricular

Oct 2020–Jul 2021	Executive , <i>Mathematics Society</i> , Indian Institute of Technology Delhi.
Aug 2019–Jul 2020	President , <i>Student Council of the Department of Mathematics</i> , Hansraj College, University of Delhi.
May 2019–Jun 2020	President , <i>Society of General Awareness</i> , Hansraj College, University of Delhi.

Skills

Technical	L ^A T _E X, MS Office, Mathtype, C++, Keynote.
Abstract	Time-management, leadership, communication, teamwork.