

# Ekansh Jauhari

## Curriculum Vitae

Department of Mathematics  
University of Florida, Gainesville  
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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 E. Jauhari, LS-category and sequential topological complexity of symmetric products. Preprint, arXiv:2503.04532 [math.AT] (2025), pp. 21.
- 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.
- Published/Accepted E. Jauhari, Distributional category of manifolds. To appear in *Bol. Soc. Mat. Mex.* [arXiv].
- 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.

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## 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 the 2020 – 2022 batch of M.Sc. Mathematics.
- 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 the 2017 – 2020 batch of B.Sc. (Hons.) Mathematics.
- 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 (AISSCE) 2017.

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## Experience

### Instructor of Record

- May 2025–Aug 2025 Analytic Geometry and Calculus I (MAC 2311), Summer C ‘25.
- Jan 2025–Apr 2025 Basic College Algebra (MAC 1105), Spring ‘25 (online).

### Teaching Assistant

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

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## Invited and Contributed Talks

### Research Talks

- 12<sup>th</sup> Apr 2025 Curvature and macroscopic dimensions of symmetric products of surfaces, *Graduate Student Topology and Geometry Conference*, Department of Mathematics, Indiana University.
- 25<sup>th</sup> Mar 2025 On symmetric products of orientable surfaces, *Topology and Geometry Seminar*, Department of Mathematics, University of Florida.
- 9<sup>th</sup> 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.
- 8<sup>th</sup> Mar 2025 On some topological and geometrical aspects 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.

- 20<sup>th</sup> Nov 2024 Topological complexity of intertwining motion, Invited talk in the *Graduate Mathematics Association Colloquium*, University of Florida.
- 24<sup>th</sup> 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].
- 1<sup>st</sup> Oct 2024 On distributional Lusternik–Schnirelmann category of manifolds, *Topology and Dynamics Seminar*, Department of Mathematics, University of Florida.
- 10<sup>th</sup> Apr 2024 On sequential versions of distributional topological complexity, *Online Mathematics Seminar*, Indian Institute of Science Education and Research Mohali (online).
- 22<sup>nd</sup> 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).
- 20<sup>th</sup> Feb 2024 Distributional topological complexity and its sequential versions, *Topology and Dynamics Seminar*, Department of Mathematics, University of Florida.
- 31<sup>st</sup> Jan 2024 Topology and robotics: a new approach to motion planning, Invited talk in the *Graduate Mathematics Association Colloquium*, University of Florida.

### Expository Talks

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

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### Conferences and Workshops Attended

- 11<sup>th</sup> – 13<sup>th</sup> Apr 2025 22<sup>nd</sup> *Graduate Student Topology and Geometry Conference*, organized by Indiana University in **Bloomington, IN**.
- 8<sup>th</sup> – 9<sup>th</sup> Mar 2025 *AMS 2025 Spring Southeastern Sectional Meeting*, organized by the American Mathematical Society and Clemson University in **Clemson, SC**.
- 27<sup>th</sup> – 29<sup>th</sup> Sep 2024 *Big Ideas in Dynamics and Geometry*, organized by the University of Illinois, Chicago in **Chicago, IL** (attended online).
- 10<sup>th</sup> Jan 2024 *GEOTOP-A International Conference*, thematic sessions on *Topological Complexity and LS-Category*, organized in **Mérida, México** (attended online).
- 3<sup>rd</sup> – 4<sup>th</sup> Nov 2023 *UF/FSU Topology and Geometry Meeting*, organized by Florida State University in **Tallahesse, FL**.
- 24<sup>th</sup> – 28<sup>th</sup> Jul 2023 *Tech Topology Summer School on the L-space Conjecture*, organized by Georgia Institute of Technology in **Atlanta, GA**.
- 26<sup>th</sup> – 30<sup>th</sup> Jun 2023 *Summer School on Scissors Congruence, Algebraic K-theory, and Trace Methods*, organized by Indiana University in **Bloomington, IN**.
- 26<sup>th</sup> – 28<sup>th</sup> May 2023 *Graduate Student Conference in Algebra, Geometry, and Topology*, organized by Temple University in **Philadelphia, PA**.
- 11<sup>th</sup> – 12<sup>th</sup> 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**.

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## Exams Qualified

Ph.D. Oral Exam	High Pass, <i>April 2025</i> .
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> .

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## Service

### Academic

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

### Extracurricular

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

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## Skills

Technical	L <sup>A</sup> T <sub>E</sub> X, MS Office, Mathtype, C, C++.
Abstract	Time management, leadership, communication, teamwork.