

Amber Habib

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Summary

I am currently Professor of Mathematics at the Shiv Nadar University, as well as Dean of Undergraduate Studies. Prior to this I was at the Mathematical Sciences Foundation, New Delhi. I have also taught at St. Stephen's College, University of Delhi.

I did my MS (Integrated) in Mathematics from IIT Kanpur and PhD from University of California, Berkeley. My research interests are in representation theory and mathematical finance. For several years I have been interested in how mathematics education at the school and college level can be made more interesting and fulfilling through special topics, projects, and an appreciation of the myriad links of mathematics with other disciplines. I have contributed to the curriculum development of other universities and to the activities of bodies like NCERT and IGNOU.

Current Positions at Shiv Nadar University

Dean of Undergraduate Studies

Head, Department of Mathematics, School of Natural Sciences

Employment

- **June 2011 to present:** Professor, Shiv Nadar University (SNU)
- **June 2008 to June 2011:** Professor, Mathematical Sciences Foundation (MSF), New Delhi
- **June 2004 to June 2008:** Associate Professor, Mathematical Sciences Foundation
- **July 2001 to June 2004:** Lecturer, (ad-hoc/temp) St. Stephen's College, University of Delhi
- **July 2000 to June 2001:** Visiting Scientist, Indian Statistical Institute, Bangalore
- **September 1997 to June 2000:** Visiting Fellow, Harish-Chandra Research Institute, Allahabad

Education

- **Ph.D.** University of California, Berkeley, 1997.
- **M.S. (Integrated)** in Mathematics, Indian Institute of Technology, Kanpur, 1990.

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Teaching Experience

- 10 semesters at UC Berkeley (Teaching Assistant): Pre-calculus, Calculus, Linear Algebra, Differential Equations, Real Analysis, Differential Geometry.
- 3 years at St Stephen's College (Lecturer): Vectors and Coordinate Geometry, Mechanics, Numerical Analysis, Real Analysis, Probability & Statistics, Boolean Algebra.
- Undergraduate & Graduate courses at Shiv Nadar University: Pre-calculus, Calculus, Ordinary Differential Equations, Linear Algebra, Mathematical Finance, Complex Analysis, Graduate Algebra, Measure Theory, Geometry, Differential Geometry, Representation Theory, and Topology.

Publications

- *Direct Limits of Zuckerman derived functor modules*. Volume XI (2001) of Journal of Lie Theory.
- *Calculus of Finance*. Undergraduate textbook on mathematical finance, Universities Press, Hyderabad, 2011.
- *A Bridge to Mathematics*. Co-authored with Geetha Venkataraman and Shobha Bagai. An undergraduate textbook primarily for students of humanities and social sciences who need to gain some expertise for a world which is increasingly mathematized. SAGE India, 2017.

Seminars, Conferences, Workshops and Schools

- Research lectures delivered at Harish-Chandra Research Institute, Indian Statistical Institute (Calcutta and Bangalore), Tata Institute of Fundamental Research (Mumbai).
- Resident faculty at *Mathematical Training & Talent Search Programme: Groups & Symmetries* (1999), *Module Theory* (2000), *Geometry* (2002), *Topology* (2003), *Foundations & Logic* (2006 and 2013), *Linear Algebra* (2012), *Real Analysis* (2014, 2015, 2016).
- Series of 5 lectures on Lie algebras at the *Workshop on Group Theory*, Indian Statistical Institute, Bangalore Centre, December 2006.
- Series of 8 lectures on Lie groups at the *AFS Workshop* conducted by the NBHM at the University of Hyderabad, May-June 2008.
- Popular lectures on aspects of mathematics, its history and its applications, to students at Hindu College, St. Stephen's College, Hansraj College, Indraprastha College for Women, Miranda House, LNMIIT Jaipur, Nehru Learning Centre for Children & Youth, National Science Centre, .
- Panelist on issues of education and gender in Mathematics at BHU, JNU, IGNOU, LSR, NCERT Ajmer, Institute of Chemical Technology (Mumbai), University of Hyderabad.

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Membership in Committees

- Executive Council of *Indian Women and Mathematics* project sponsored by National Board for Higher Mathematics. (2016-19)
- Advisory Committee of the *Jawaharlal Nehru National Science, Mathematics and Environment Exhibition (JNNSMEE)* for Children, NCERT. (2013-15)
- Contributor to the *Technology Vision 2035* report of the Technology Information, Forecasting and Assessment Council (TIFAC), Department of Science & Technology.
- *Task Force on Development of Higher Mathematics for Applications*, reporting to the Steering Committee on Science & Technology for the XII Five-Year Plan, Planning Commission. (2011)
- Board of Studies for the School of Sciences, Islamic University of Science and Technology, Kashmir. (From 2011)
- Expert group for formulating mathematics courses and degree programmes at Ambedkar University, Delhi. (From 2010)

Grants

- Coordinator of *Inviting All Young Minds*, an annual MSF summer internship programme for high school and college students, 2009 to 2011. Sponsored by grants from National Council for Science & Technology Communication (DST), Science & Engineering Research Council (DST), Mr Narayana Murthy, NIIT, and Shiv Nadar University.
- Coordinator of *Develop the use of Bamboo in education and in the invention and improvement of useful gadgets and tools*, grant from National Mission for Bamboo Application, DST, 2010.
- Core faculty member for *E-QUAL grant for improving quality and accessibility of higher education* awarded by the European Union to King's College London, University of Bologna, Ambedkar University, Jadavpur University, University of Hyderabad and Shiv Nadar University with British Council as team leader.
- Co-investigator for NBHM sponsored project on multivariate analysis of high frequency stock data.

Odds and Ends

- Recipient of *SNU Faculty Excellence Award* for "Excellence in Teaching during 2011-14."
- My main hobby is nature photography, especially birds and butterflies.