PhD at School of Arts and Sciences

Access a thriving interdisciplinary research environment, state of the art laboratories and excellent faculty for an exceptional graduate education.

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Ahmedabad University's doctoral programmes involve completing graduate-level course work, passing a comprehensive examination, and successfully completing a dissertation. The School of Arts and Sciences offers doctoral programmes in Humanities and Social Sciences, Life Sciences, and Physics. Details of each of the programmes is given below.

Interdisciplinary Humanities and Social Sciences

The PhD programme in Interdisciplinary Humanities and Social Sciences (IHS) at Ahmedabad University is unique in India. Unlike conventional doctoral programmes, the framework of our IHS programme recognises the inherently interdisciplinary nature of knowledge production. The Programme integrates theoretical training with a focus on cutting-edge research methods, and allows for flexibility in designing interdisciplinary and disciplinary research projects. Students who wish to design an interdisciplinary PhD project are trained to pursue novel research questions that transcend disciplinary silos across the humanities and social sciences. The Programme is equally committed to cultivating disciplinary depth and also supports scholars who are interested in pursuing research in the following disciplines:

- Psychology
- History
- Political Science

Programme Must Knows

Disciplines: Biological and Life Sciences | Mathematical and Computational Sciences | Interdisciplinary Humanities and Social Sciences | Physics

- Eligibility
- Admission
- Faculty
- Doctoral Programme Policy

- Philosophy
- Urban Studies
- Anthropology and Sociology

We accept applications from full-time and part-time students. The Programme collaborates closely with faculty from other Schools and Centres at Ahmedabad University, whose work overlaps with the School of Arts and Sciences. We aim to prepare candidates for careers in academia, research and related practice-based careers of applied knowledge.

Mathematical and Computational Sciences

The PhD programme in Mathematical and Computational Sciences at Ahmedabad University encourages students to study and conduct quality research in Mathematics, Statistics, and Computer Science, as well as the intersections of these subjects with other disciplines. The current research interests of the faculty involve core and interdisciplinary areas involving applications of Mathematical and Computational Sciences, for example, Biology, Physics, Ecology, Social Science, Engineering, and Management. This provides students with opportunities to explore a wide range of possibilities to select the problem they want to work on for their PhD thesis.

Broad Research Areas:

- Additive Combinatorics, Combinatorial Number Theory
- Number Theory - Modular Forms, Automorphic Forms, and Automorphic Representations
- Mathematical Physics and String Theory
- Noncommutative Topology and Geometry
- Quantum Computing
- Data Science and Statistical research in Health and Climate
- Extreme Value Statistics
- Combinatorial Algorithms, Population Genetics, Statistical Computing, Bioinformatics
- Mathematical Biology
- High-Performance Scientific Computing
- Edge and Fog Computing
- Population-Based Bio-Inspired Algorithms

Life Sciences

At the Biological and Life Sciences division, we study fundamental biological questions that span biomolecules, cells, organisms and ecosystems. The objectives of our programme are to nurture science and innovation through rigorous teaching and research, in areas that are central to human and environmental health. The educational objectives are to train students in modern biological techniques in molecular, cellular, biochemical, integrative and computational biology. We encourage multi-disciplinary thinking, cross-disciplinary interactions, and research collaborations with engineers, physicists, chemists, and faculty from the arts and humanities.

We not only celebrate knowledge creation but also its application, by facilitating engagement with industries and by promoting entrepreneurship via VentureStudio (the startup incubator at Ahmedabad University). Students are actively encouraged to break traditional disciplinary boundaries as they design their course work and research programme. Throughout the programme of study and research, we emphasise scholarship and provide an environment that is open to intellectual discussion. Our faculty are from diverse, often interdisciplinary, backgrounds, with many engaging in interactive research in overlapping areas that include, but are not limited to:

- Species, Climate Warming, and Evolution
- Neuroscience
- Behavioral Ecology and Wildlife Biology
- Molecular parasitology
- Forensic Science and Toxicology
- Animal Behaviour and Disease ecology
- Systems Biology and Evolution
- Cancer Biology
- Structural Biology/Biochemistry/Bioinformatics

Physics

At Ahmedabad University, we encourage students to think beyond the traditional borders of the conventional sub-areas of Physics as well as across other disciplines. While some of the current research interests of the faculty involve core areas of Physics, the research interests of faculty involve a significant interdisciplinary approach combining physics, biology and atmospheric sciences. This provides students with opportunities to explore diverse possibilities. The PhD course curriculum comprising of various electives reflects this thinking. PhD aspirants are encouraged to go through the research activities of the faculty members and have an open mind while deciding their research career. It may also be helpful for them to examine the PhD programmes in Life Sciences, and in Humanities and Social Sciences, which give a sense of the engaged, interdisciplinary and collaborative learning practices that are expected at the School of Arts and Sciences.

The PhD Programme in Physics is designed to prepare students for a career as a researcher, either in academia or in industry. Careers in industry will depend on the area of doctoral research and the extent of industrial research in that field. Through coursework and research projects that

will expose students to research in different branches of Physics, students will be prepared for the expected and appropriate level of research in the PhD programme.

The Structure of the curriculum is as follows:

I	Courses in Physics and related areas	27 credits
II	Research Methodology	3 credits
III	Statistics	3 credits
IV	Technical Writing	3 credits
	Total	36 credits

Doctoral students are required to take courses in Mathematical Physics, Computational Physics, Research Methodology, Technical Writing, and Statistics. In addition, students will take five additional courses out of a set of elective courses depending on their area of interest, and complete two Research Projects. Doctoral programme students will choose their research topic in consultation with the faculty during their coursework in the PhD programme.

Broad research areas

- Atmospheric Physics, Air Pollution
- Astronomy and Astrophysics
- Gravitation and Cosmology
- Magneto-optics, Optical Magnetometry
- Quantum Computing
- Statistical Physics
- Plasma and Ion Beam Physics

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