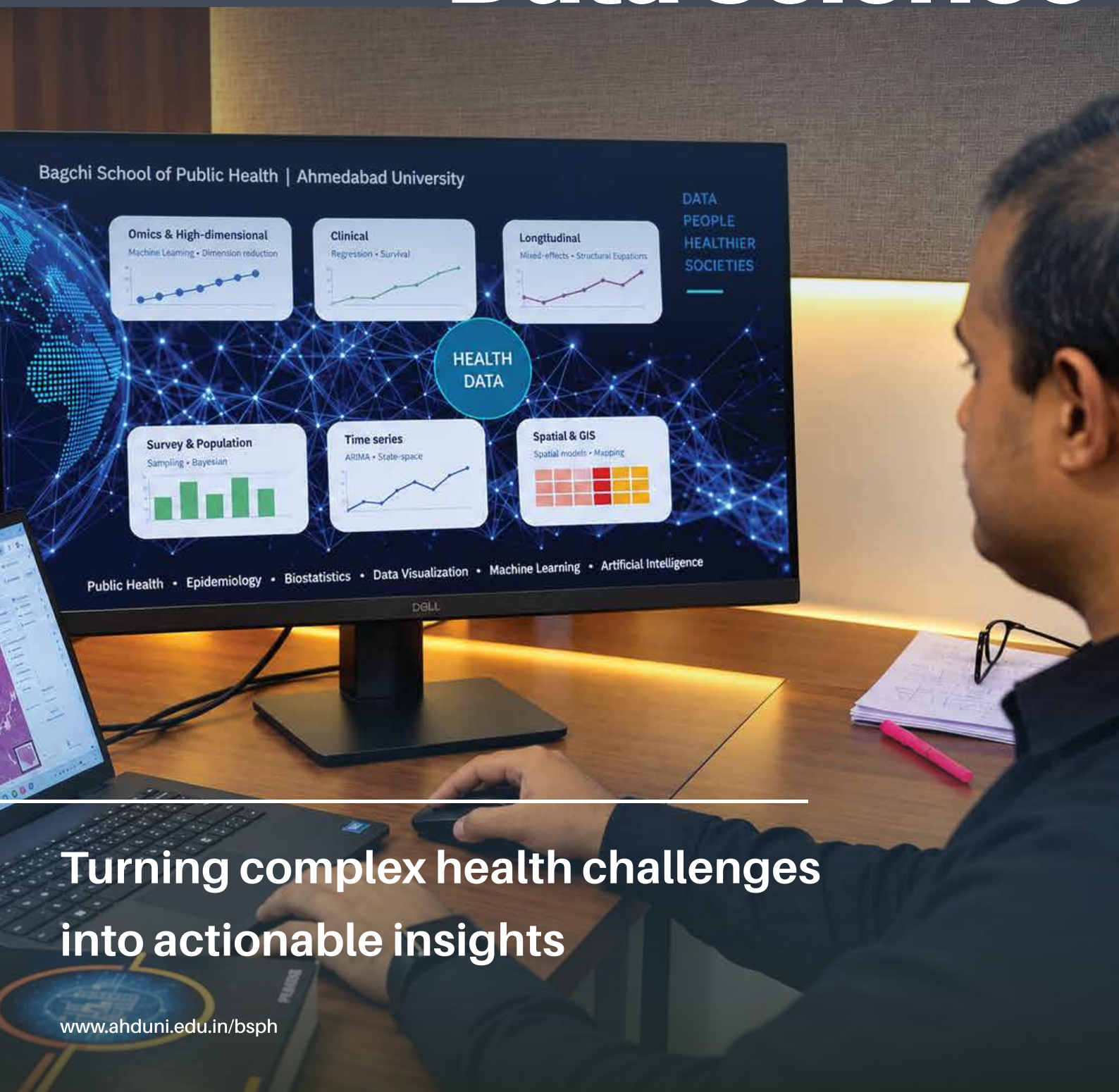
Ahmedabad University

MS Master of Science Health Data Science



Turning complex health challenges into actionable insights

www.ahduni.edu.in/bsph



Ahmedabad University

About Us

- Established in 2009
- Leading private, non-profit research university
- Liberal education focused on interdisciplinary learning, practice orientation, and research thinking
- Prepares critical thinkers who are analytically equipped, practically oriented, and contextually aware global citizens
- Six schools and ten centres bringing liberal arts, sciences, and the professions to engage together in knowledge creation for addressing complex challenges of the society.
- Curriculum offering majors that merge the boundaries of disciplines to prepare students for the new economy.

Bagchi School of Public Health

The School aims to train leaders who can develop holistic solutions to interdisciplinary problems of the 21st century and to educate and inspire individuals, communities, and organisations. The School's mission is to improve public health and the environment locally, nationally, and globally through interdisciplinary collaborative education, research, and training and by developing, disseminating, and implementing sustainable evidence-based interventions, programmes, and policies. The School's initial focus is on Environmental Health and Analytical Sciences, including Data Science, Biostatistics, Epidemiology, and executive education. The School's flagship programme, a PhD in Epidemiology, equips students with the necessary advanced analytical and softskills to tackle complex public health challenges.

Amrut Mody School of Management ▪ Bagchi School of Public Health ▪ School of Arts and Sciences
▪ School of Engineering and Applied Science
▪ Undergraduate College ▪ The Graduate School

Ahmedabad Design Lab ▪ Centre for Heritage Management ▪ Centre for Learning Futures
▪ Global Centre for Environment and Energy ▪ Sahyog: Centre for Promoting Health ▪ Stepwell Centre for Asian Futures
International Centre for Space and Cosmology ▪ The Climate Institute
▪ The Institute of Manufacturing and Economy ▪ VentureStudio

Message from the Dean

The mission of the Bagchi School of Public Health is to improve human and planetary health. Health problems are complex, and their prevention and management, requires expertise from several disciplines. At the Bagchi School of Public Health, our aim is to develop leaders with the motivation and ability to develop data-driven, holistic solutions to important public health problems. The rapid digitisation of data and evolution of technology are creating a growing opportunity for data scientists to analyse complex data to better inform individual choices, clinical practice, industry priorities, public health initiatives, and policy decisions.

The Master of Science in Health Data Science reflects an interdisciplinary approach to address complex challenges. The programme prepares professionals who can bridge health sciences with statistics, computing, and analytical methods for big data. The programme incorporates recent developments in digital health, applied machine learning, artificial intelligence and analytics, with foundational knowledge about health at individual and population levels, and practical skills. Students will learn about emerging approaches for analysing complex health data, including medical imaging, multi-omics, exposome data, epidemiological methods and other high-dimensional datasets. They will also develop skills in deep learning, natural language processing, and integrative data analysis. Learning is centred on methodological skills, real-world data on health, healthcare, and related factors, collaborative assignments, and applied projects. The programme is supported by faculty with diverse expertise and training from leading institutions in India and internationally, bringing together perspectives from biomedical engineering, statistics, public health, computing, medicine and related disciplines.

The programme also includes a one-year mentored interdisciplinary industry internship, providing students with an opportunity to apply their learning to real-world challenges.

I am delighted to welcome students to this programme and look forward to seeing them contribute to the future of health, healthcare, and public health through data-driven approaches.

Kaumudi Joshipura

ScD (Harvard University)
Susmita and Subroto Bagchi Professor of Public Health and Dean
Bagchi School of Public Health

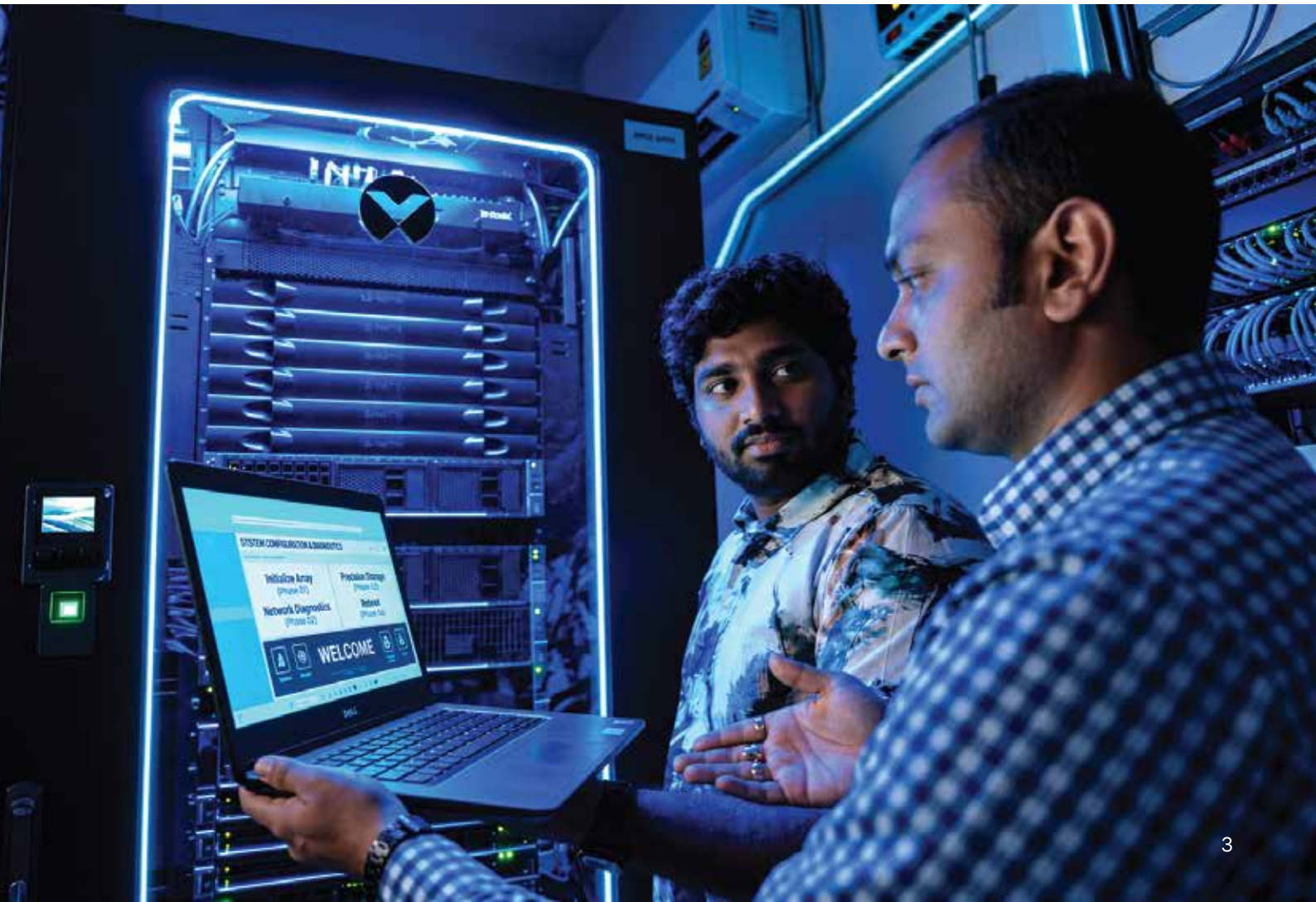


Introducing
MS Health Data Science

The rapid digital transformation of healthcare has fundamentally changed the way health data is generated, managed, analysed, and translated into evidence for clinical practice, public health, and healthcare policy. Advances in electronic health records, medical imaging, wearable technologies, genomics, biomedical sensors, and artificial intelligence have created unprecedented opportunities to improve disease prevention, diagnosis, treatment, and population health. These developments have also increased the demand for skilled professionals with strong analytical and computational capabilities, as well as a deep understanding of health systems, epidemiology, and healthcare organisations.

The Master of Science in Health Data Science addresses this emerging need. It prepares professionals who can bridge health sciences with statistics, computing, and data-driven analytical methods.

Health Data Science is an inherently interdisciplinary field that brings together expertise from public health, epidemiology, biostatistics, computer science, artificial intelligence, biomedical engineering, medicine, and health informatics. The programme enables students to integrate knowledge from these disciplines within a unified analytical framework to address complex clinical, public health, and biomedical challenges.



The Ahmedabad Advantage

The programme aligns with national initiatives such as the Ayushman Bharat Digital Mission while addressing the growing international demand for professionals who can apply advanced analytical methods across healthcare, research, pharmaceutical and biotechnology industries, digital health organisations, government agencies, and international public health institutions.

The programme will commence in July 2027. It aims to prepare graduates pursuing careers in healthcare, biomedical research, digital health, and health technology sectors.

Programme Objectives

Provide strong foundational grounding in public health, health systems, statistics, and programming, particularly for students from diverse academic backgrounds.

Deliver rigorous training in epidemiological methods, statistical methods, bias assessment, and evidence-based health data analysis.

Equip students with knowledge and practical skills in AI, deep learning, biomedical signal processing, clinical NLP, computer vision, genomics, and multimodal health data analytics.

Enable students to apply advanced analytical and computational methods to real-world healthcare and public health challenges, including electronic health records, medical imaging, wearable devices, precision medicine, and population health. Promote interdisciplinary thinking by integrating public health, epidemiology, artificial intelligence, health informatics, biomedical sciences, and responsible data-driven decision-making.

Provide structured opportunities for experiential learning through industry projects, collaborative research, and a mandatory one-year industry internship.

Prepare graduates for careers in healthcare analytics, digital health, pharmaceutical and biotechnology industries, hospitals, public health organisations, research institutions, and advanced doctoral training in Health Data Science and related disciplines.



Learning Outcomes

Formulate health and biomedical research questions and design data-driven analytical solutions grounded in scientific evidence.

Design reproducible data analysis workflows and apply appropriate epidemiological, statistical, and machine learning methods to health research problems.

Acquire, manage, integrate, analyse, and interpret diverse health data, including electronic health records, medical imaging, biomedical signals, clinical text, wearable sensor data, and population health databases.

Apply statistical modelling, predictive analytics, machine learning, deep learning, and quantitative methods to complex health datasets.

Develop, validate, interpret, and responsibly deploy AI models for healthcare and public health while considering ethics, privacy, fairness, and governance.

Work effectively in interdisciplinary teams and communicate data-driven findings to diverse stakeholders.

Curriculum Structure

	Credits
Term Zero	4
Programme Core	33
Electives	3
Industry Seminar	Required
Industry Internship	40
TOTAL CREDITS	**80**



Curriculum Structure

TERM ZERO

Basic Mathematics
Health Science Fundamentals
Introduction to Programming
Professional Communication

QUARTER 1

Foundations of Public Health
Applied Statistics I
Principles of Epidemiology I
Environmental Health
Health Data Systems and Computing
LLM Prompt Engineering

QUARTER 2

Biomedical Signal Analysis
Applied Statistics II
Principles of Epidemiology II
Healthcare Data Engineering and Cloud Infrastructure
Machine Learning for Public Health I
Data Science for Health

QUARTER 3

Deep Learning Foundations for Healthcare
Epidemiological Data Analysis I
Biomedical Analytics and AI Applications I
Machine Learning for Public Health II
Responsible AI, Ethics and Governance in Healthcare
Elective 1

QUARTER 4

Clinical Natural Language Processing and Generative AI
Computer Vision and Medical Imaging
Epidemiological Data Analysis II
Biomedical Analytics and AI Applications II
Genomics and Computational Biology
Elective II / Startup Project





Accreditations and Awards

- Recognised by the Government of Gujarat as a Centre of Excellence
- Accredited with 'A' grade by the National Assessment and Accreditation Council (NAAC)
- Awarded Leadership and Management Team of the Year at the Times Higher Education Awards Asia 2025
- Awarded a 5-star rating, the highest awarded in the Gujarat State Institutional Rating Framework (GSIRF) for 2021-22 and 2023-24, by the Knowledge Consortium of Gujarat (KCG), Department of Education, Government of Gujarat
- Awarded the Royal Institute of British Architects (RIBA) International Award for Excellence 2024 for our University Centre.
- Awarded a 'Platinum Rating' by the Indian Green Building Council for sustainability and green practices
- Recognised by the UGC under Section 12(B) of the UGC Act, becoming one of the very few private research universities to have been awarded this recognition for select research universities
- Recognised as a Highly Commended University for Teaching and Learning Strategy of the Year in the Times Higher Education (THE) Awards Asia 2023
- Awarded the AACSB's Innovations That Inspire Award 2023 for its Foundation Programme
- Awarded Gold Rating by the Indian Green Building Council for achieving the Green Building Standards at our University Centre

Campus Infrastructure

The Ahmedabad University campus offers a modern, sustainable, and fully networked environment designed to enrich the learning experience. The state-of-the-art infrastructure at the University includes modern and technically equipped classrooms, laboratories, a central library, and other learning resources. It provides comprehensive facilities for student well-being, including accommodation, sports facilities, cafes, spaces for recreation, and a wellness centre.

The award-winning University Centre is a vibrant hub for exchange of ideas, informal meetings, and social events. The eco-friendly campus, characterised by a rich biodiversity, has implemented sustainability strategies to enhance resilience against extreme heat, reduce water runoff, and augment green spaces for the entire community.

Student Housing

The Ahmedabad University student residencies offer high-quality, comfortable, and secure living accommodations. Committed to fostering a sense of community, the residencies celebrate diversity in ideas, lifestyles, and cultural practices, providing a true home-away-from-home experience.

Located within a one-kilometer radius of Ahmedabad University's Central Campus, the residencies offer air-conditioned accommodations on a sharing basis, subject to availability. Shared dining halls, gymnasiums, and recreational spaces are available for residents' convenience. The University also provides transportation to and from the campus. All residencies are under 24/7 security surveillance, with wardens, security guards, CCTV cameras, and on-call medical services ensuring residents' safety and wellbeing.

3 Off-Campus Student Residences within a 1-kilometre radius of the University offer accomodation on a first come first served basis.

Life at Ahmedabad

At Ahmedabad University, learning extends beyond the classroom. Vibrant student clubs, cultural events, and a robust support system create a strong community. On campus, students receive the support and resources they need to succeed.

Located in the heart of Ahmedabad, India's first UNESCO World Heritage City, the University offers a unique blend of academic excellence and cultural experiences. The city's vibrant mix of tradition and modernity provides an inspiring backdrop for holistic education and exploration. The city brims with opportunities for students who can participate in inter-college competitions, music and performance festivals and explore ancient monuments, vibrant markets, and more.



Faculty



Kaumudi Joshipura
Dean & Susmita and Subroto Bagchi Professor of Public Health
ScD (Harvard University)

Research Interests: Global Health, Planetary Health, Climate Change, Cardiometabolic and other Non-Communicable Disease, Modifiable Lifestyle factors, COVID-19, Epidemiology, Nutrition, Oral Health, Health Promotion, Pregnancy outcomes, COVID-19.



Jayendra M Bhalodiya
Assistant Professor
PhD (The University of Warwick)

Research Interests: Medical Image Processing, Computer Vision, Artificial Intelligence, Health Technology



Rajendra Gadhavi
Professor of Practice
MD-PhD (VNSGU)

Research Interests: Epidemiology, Infectious Diseases surveillance and Programme Monitoring (HIV/AIDS, Vaccine Preventable Diseases, and COVID-19), Public Health Practice and Programme Implementation, Non-communicable Diseases Epidemiology, Maternal and Child Health (MCH), Health systems



Indrajit Ghosh
Assistant Professor
PhD (Indian Statistical Institute, Kolkata)

Research Interests: Infectious Disease Modelling, Computational Biology, Mathematical Epidemiology, Time Series Forecasting, Applied Machine Learning



Subhabrata Moitra
Assistant Professor
PhD (University of Kalyani)

Research Interests: Allergy, Asthma, Chronic Obstructive Pulmonary Disease, Chronic Respiratory Diseases, Chronobiology, Respiratory Epidemiology, Occupational and Environmental Medicine, Quality of Life



Monjoy Saha
Assistant Professor
PhD (IIT Kharagpur)

Research Interests: Public Health Data Science, Computational Epidemiology, Cancer Epidemiology, Digital Pathology for Population Health, Artificial Intelligence for Disease Risk Prediction and Early Detection, Genomic and Molecular Data Analysis, Electronic Health Record-Linked Outcomes Research, Health Informatics, Infectious Disease



Anil Patel
Assistant Professor
PhD (Physical Research Laboratory, Ahmedabad)

Research Interests: Atmospheric Aerosol Chemistry, Oxidative Potential of Aerosols, Reactive Oxygen Species and Associated Health Effects, Atmospheric Brown Carbon, Aerosol-Cloud Chemistry



Ashish Kumar Upadhyay
Assistant Professor
PhD (International Institute for Population Sciences, Mumbai)

Research Interests: Biostatistics and Demographic Modelling, Small Area Estimation (SAE), Spatial Epidemiology and Geospatial Analytics, Gender and Health Equity, Maternal and Child Health, Non-communicable Disease Epidemiology (hypertension and diabetes), Health Policy and Systems Research

Faculty



Dipankar Bandyopadhyay
Visiting Professor
PhD (University of Georgia)

Research Interests: Bayesian Methods, Oral Health Epidemiology, Survival Analysis, Spatial/spatio-temporal Modelling, Correlated and Longitudinal Data, Dynamic Treatment Regimes, Non-Gaussian Regression and Non-Euclidean Regression



Shilpa Bhupathiraju
Visiting Professor
PhD (Tufts University)

Research Interests: Nutritional Epidemiology, Dietary Patterns, Cardiovascular Disease, Type 2 Diabetes, Metabolomics, Proteomics, Dietary Biomarkers, Precision Nutrition



Siddhartha Kar
Visiting Professor
PhD (University of Cambridge)

Research Interests: Public Health, Epidemiology, Genetic Epidemiology, Clinical Epidemiology, Non-Communicable Disease Epidemiology, Cancer Epidemiology, Bioinformatics, Data Science, Artificial Intelligence



Shweta Khandelwal
Visiting Professor
PhD (University of Delhi)

Research Interests: Nutrition Epidemiology, Policy, Public Health Nutrition, Food Systems, Chronic Diseases



Viswanathan Mohan
Visiting Professor
PhD (University of Madras)

Research Interests: Diabetes, Endocrinology, Epidemiology, and Public Health



Ayesha Mukhopadhyay
Visiting Professor
PhD (University of Memphis)

Research Interests: Hematology, Non-Communicable Diseases, Climate Change, One Health, Social and Behavioral Sciences



Niyati Parekh
Visiting Professor
PhD (University of Wisconsin-Madison)

Research Interests: Nutrition, Epidemiology, Diet-related risk Factors, Non-communicable Diseases, Obesity, Metabolic Dysregulation, Cancer



R Guha Pradeepa
Visiting Professor
PhD (Madras University)

Research Interests: Epidemiology of Diabetes, Non-communicable Diseases, Nutrition, and Diabetes Complications



Neha Rathi
Visiting Professor
PhD (Deakin University)

Research Interests: Qualitative Research Methods, Nutrition Education, Food Literacy, Home Food Environment, School Food Environment, Home Economics

The programme is delivered by distinguished faculty members at the Bagchi School of Public Health alongside interdisciplinary experts across computational and statistical domains at Ahmedabad University, as well as industry experts.

Faculty from the Amrut Mody School of Management, School of Arts and Sciences, and the School of Engineering and Applied Science also contribute to teaching in the MS in Health Data Science Programme.

Admissions

Eligibility

- Applicants must hold a recognised Bachelor's degree or an equivalent professional qualification, with a minimum of 55 per cent marks or an equivalent CGPA. Relaxation, where applicable, will be provided in accordance with Ahmedabad University regulations and statutory norms.
- Applicants should demonstrate aptitude for quantitative reasoning, computational thinking, and scientific problem-solving. Prior knowledge of elementary mathematics and basic programming or computing is desirable.
- Applicants from the following academic disciplines, but not limited to, are encouraged to apply: Statistics, Biostatistics, Mathematics, Computer Science, Computer Science and Engineering, Computer Applications, Information Technology, Artificial Intelligence and Data Science, Engineering disciplines with a Quantitative Computing, Electronics, Instrumentation, Biomedical, or Data Science Orientation, Biology, Bioinformatics, Computational Biology, Biomedical Engineering, Health Informatics, Public Health, and other quantitative and other allied disciplines with strong analytical aptitude.

Application and Selection Process

- Eligible candidates must submit the completed online application form and pay a non-refundable application fee of INR 700.
- Applicants may submit any one of:
  - Relevant national and international examinations, in addition to CUET-PG, GATE, IIT JAN, GRE, etc.
  - Applicants without a sufficient score in any of the above need to appear for the Ahmedabad University Graduate Aptitude Test (Health Data Science).
- Shortlisted candidates will be required to appear for an in-person Written Examination. Exceptions to in-person attendance may be considered for international students or candidates who are unable to comply due to valid medical or personal circumstances.
- Candidates who qualify in the Written Examination will be invited for a Personal Interview.
- We review each application holistically, and applicants are shortlisted on the basis of their overall strength and potential, taking into account their past academic record, written test scores, and evaluation during personal interactions.

Start your Application

Fees, Financial Aid and Refunds

The two-year tuition fee for the incoming class of 2027 is INR 4,00,000 (INR 2,00,000 per annum), which includes books/ course materials/ activity charges.

	First Year Fees in INR	Second Year Fees in INR
Tuition Fees and Course Material*	2,00,000	2,00,000

Payment Schedule

Selected candidates are required to pay the prescribed fees as mentioned in the offer letter to confirm their admission.

Refunds

Refunds for withdrawal/cancellation of admission will be as per UGC Guidelines.

Merit Scholarship & Financial Aid

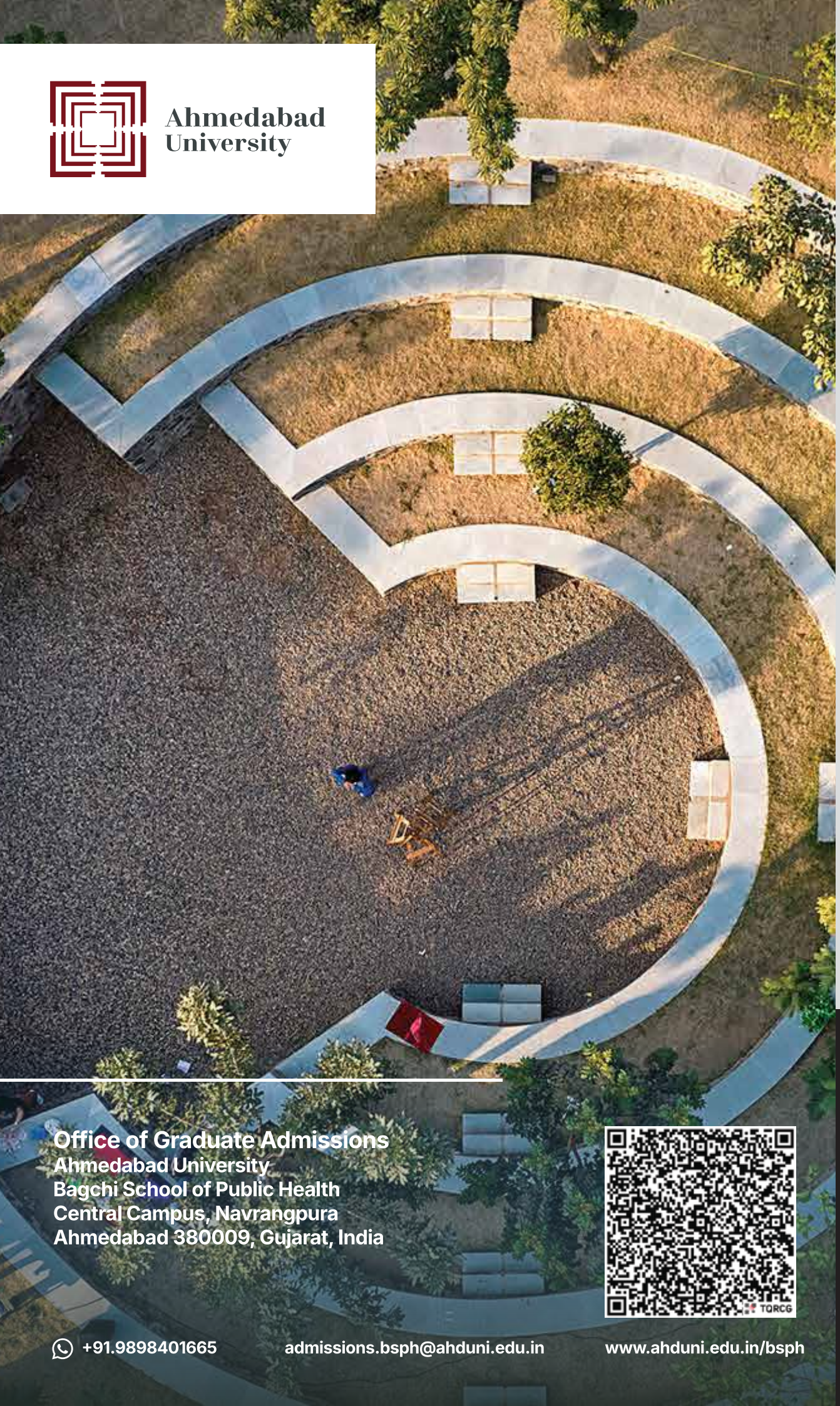
At Ahmedabad University, we believe that finances should not stand in the way of pursuing education.

Financial aid of INR 50,000 will be provided to a highly qualified limited number of students, who will undertake Teaching Assistantship responsibilities during the programme.









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