



INSTITUTE OF SCIENCE
SHAPING A BETTER FUTURE



तमसो मा ज्योतिर्गमय



NIRMA
UNIVERSITY

AHMEDABAD

NAAC ACCREDITED

Our Vision

Shaping a better future for mankind by developing effective and socially responsible individuals and organizations

Our Mission

Nirma University emphasizes the all-round development of its students. It aims at producing not only good professionals, but also good and worthy citizens of a great country, aiding in its overall progress and development. It endeavours to treat every student as an individual, recognize their potential, and ensure that they receive the best preparation and training for achieving their career ambitions and life goals.

Quality Statement

To develop high quality professionals who reflect and demonstrate values that the university stands for, through innovation and continuous improvement in facilitation of learning, research and extension activities.

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Nirma Education And Research Foundation

Dr Karsanbhai K. Patel, the founder Chairman of the Nirma group, is a legendary business personality who inspires aspiring entrepreneurs all over the country. Dr Karsanbhai crystallized his long-cherished dream of providing world-class facilities for professional education in the state of Gujarat through the establishment of Nirma Education and Research Foundation (NERF) in 1994. He believed that an institute of professional courses imparting world-class education facilities to the youth, was the need of the hour for the state of Gujarat. His dream was also to inculcate the spirit of social relevance through education among the young students of the country.

NERF established Nirma Institute of Technology in 1995, Nirma Institute of Management in 1996. These institutions made their mark by achieving very high standards and as a natural consequence of the outstanding performance in their respective areas, the Government of Gujarat in 2003 approved the proposal of NERF to grant the status of a university under a special act passed by the Gujarat State Legislative Assembly. Subsequently the University established five more institutes, the Institute of Pharmacy in 2003, the Institute of Science in 2004, the Institute of Law in 2007, Institute of Architecture and planning in 2014, Institute of Commerce in 2016 and Institute of Design in 2017. All the Institutes under Nirma University are providing value-based quality professional education and are widely respected for their contribution to the society.

BOARD OF TRUSTEES

Dr Karsanbhai K. Patel

Chairman, Nirma Limited,

Chairman, Nirma Education and Research Foundation, President, Nirma University

Shri R. D. Shah

Eminent Chartered Accountant

Shri Hirenbhai K. Patel

Managing Director, Nirma Limited

Shri Rakeshbhai K. Patel

Vice Chairman, Nirma Limited

Shri K. K. Patel

Managing Trustee,

Vice President, Nirma University

Nirma University

Nirma University, Ahmedabad, was established as a statutory university in the year 2003 under Gujarat State Act by the initiative of the Nirma Education and Research Foundation (NERF). The University is duly recognized by the University Grants Commission (UGC) under section 2(f) of the UGC Act. The University has recently been awarded 'A+' grade by National Assessment and Accreditation Council (NAAC), making it the first private university in Gujarat to enter into the elite group. In January 2022, Government of Gujarat recognized Nirma University as an 'Center of Excellence'. The University is a member of Association of Indian Universities (AIU) and Association of Commonwealth Universities (ACU). The University has also received SIRO (Scientific and Industrial Research Organization) recognition from DSIR, Department of Science and Technology, Government of India. Dr. Karsanbhai K. Patel, Chairman, Nirma Group of Companies and Chairman, NERF is the President of the University.

Nirma University consists of the Faculty of Technology, Faculty of Management, Faculty of Pharmacy, Faculty of Science, Faculty of Law, Faculty of Architecture and Planning, Faculty of Commerce, Faculty of Design and Faculty of Doctoral Studies and Research. The graduate, post graduate and doctoral programmes offered by these faculties are rated highly by accreditation agencies, industries, business magazines and students. Innovation, excellence, and quality are the key driving forces on the campus and this has translated the vision of the University institutions into a reality. Today the campus vibrates with world class curricular activities and with myriad co-curricular and extra-curricular activities like international conventions, symposiums, conferences, student competitions, conclaves, short-term industry relevant programmes, cultural activities and sports etc.





Board of Governors

Dr Karsanbhai K. Patel

*Chairman, Nirma Limited,
Chairman, Nirma Education and Research Foundation, President, Nirma University*

Shri K.K. Patel

Vice President, Nirma University

Dr Anup K. Singh

Director General, Nirma University

Shri Rakeshbhai Patel

*Vice Chairman,
Nirma Limited*

Smt. Sunaina Tomar, IAS

*Dept. Higher and Technical Education, Education Department,
Government of Gujarat, Gandhinagar*

Shri Hirenbhai K. Patel

*Managing Director,
Nirma Limited*

Shri R. D. Shah

*Chartered Accountant, Trustee Nirma Education and
Research Foundation*

Prof. D.P. Agrawal

*Former Chairman, UPSC,
New Delhi*

Shri G. R. Nair

*Executive Registrar,
Nirma University*

Dr P. N. Bhagwati

*Industrialist and Educationist, Chairman,
Bhagwati Sphero Cast Limited*

Shri Kamalbhai Trivedi

*Advocate General, Gujarat High Court,
Ahmedabad*

Shri Pankajbhai R Pate

*Chairman Zydus Lifesciences Ltd.,
Ahmedabad*

Prof Madhuri Parikh

Dean, Faculty of Law Nirma University

Prof R. N. Patel

*Dean, Faculty of Technology & Engineering Dean,
Faculty of Law Nirma University*



President

Dr. Karsanbhai K. Patel

*Patel Chairman, NERF
President, Nirma University*

Like the other constituent institutes of Nirma University, the Institute of Science draws much of its inspiration and strength from its founder, Dr. Karsanbhai K. Patel, Chairman, Nirma Limited. Dr. Patel is renowned for his contribution to industrial development in the country. In the last one decade, he has turned his attention to the growing challenges in the education. Among many social projects that he has initiated, Nirma Education and Research Foundation (NERF) is monumental of his commitment to society.

Dr. Patel has been conferred with "Padma Shri Award for the year 2010". He is also recipient of the "Udyog Ratna Award – 1990", "Gujarat Businessman Award -1998", "Ernst & Young Lifetime Achievement Award – 2006," "Sardar Vallabhbhai Patel Vishwa Pratibha Award-2009", "The Baroda Sun Lifetime Achievement Award 2009" and "Chemtech Award of Hall of Fame". Dr. Patel is awarded Honorary Doctorate of Humane Letters by Florida Atlantic University, USA for Business and Marketing acumen and philanthropy. He was also awarded Honorary D. Lit by Devi Ahilya Vishwavidyalaya, Indore.

Dr. Patel firmly believes that to withstand global competition and to satisfy the growing need of quality professionals, an academic institution must constantly grow, innovate, build strength and strive to become self-reliant.





Director General

Dr. Anup Singh

*Director General
Nirma University*

Dear Prospective Student,

India is known for its research acumen from the time immemorial. However, it is fast transforming as a vibrant knowledge economy. The country is successful in providing one of the best health care facilities and is one of the leading countries in the field of science and technology. The backbone of this achievement is scientific knowledge base, including basic biology, which is necessary to produce eminent scientists and academicians in the future.

At Nirma University, we provide high quality education in biological sciences in diverse branches of Biotechnology, Biochemistry and Microbiology. Along with the requisite knowledge in the subjects, we focus on the overall development of the students so that they are ready to take up the challenges that they will be facing in the future. We facilitate the personality development of students and help them realise their potential.

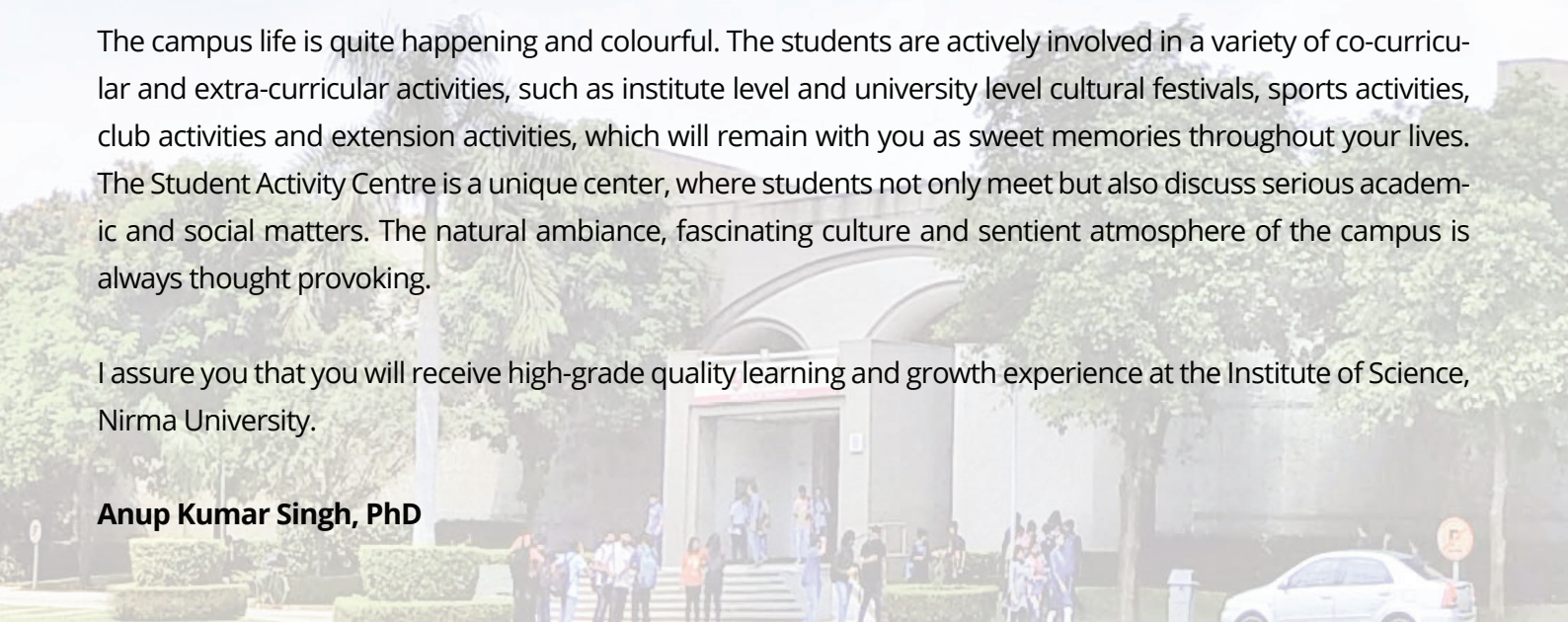
Nirma University is duly accredited by the National Assessment and Accreditation Council (NAAC). It provides outcome-based education, focused at employability, empowerment and entrepreneurship. The Institute of Science is at the cutting edge of research and innovation. It receives research grants from various state and central government funding agencies and its faculty members are active researchers.

The Institute, besides basic training in the life sciences, aims to nurture the employability skills like conception of innovative ideas, creative writing, presentation, communication, and overall execution which will help you take up novel research work in the future. Besides providing high quality training, the Institute of Science hosts a series of events like seminars, conferences and workshops to invite senior scientists, researchers, academicians, experts and corporate professionals who present their work in their respective fields. These give students a good exposure to recent developments in modern biological research and ample scope to interact with them and discuss their ideas. The Institute has a placement cell that provides the students an opportunity to be placed in biotechnology and pharmaceutical companies.

The campus life is quite happening and colourful. The students are actively involved in a variety of co-curricular and extra-curricular activities, such as institute level and university level cultural festivals, sports activities, club activities and extension activities, which will remain with you as sweet memories throughout your lives. The Student Activity Centre is a unique center, where students not only meet but also discuss serious academic and social matters. The natural ambiance, fascinating culture and sentient atmosphere of the campus is always thought provoking.

I assure you that you will receive high-grade quality learning and growth experience at the Institute of Science, Nirma University.

Anup Kumar Singh, PhD





Director's Desk

Prof. Sarat K. Dalai

Biology has scaled great heights and become multidisciplinary in nature. The success of human genome sequencing with the emergence of systems biology combined with AI (artificial intelligence) has revolutionized our understanding of the biological phenomena at molecular level. Personalized medicine is being realized as part of our life style in managing human health. The technologies developed during the last two and half decades not only help us give new dimension to scientific innovations, but also reduce the cost of molecular diagnosis for many diseases.

The Institute of Science at Nirma University introduces the advancements in Modern Biology to the young students, motivates them to take up the challenge and help them to make significant contributions to the knowledge and to develop novel technologies required for addressing the imposing problems of good health, food demand, and

The students are guided by structured lectures, relevant practicals in laboratories, self-directed and computer-assisted learning, review of literature, oral presentations and expert lectures. The expectation of the course and subject teams is that students will work diligently and effectively towards acquiring the required standard of knowledge, comprehension and technical skills that will make them productive and thus help them achieve their goals. Research training plays an important role at the post graduate level. Therefore, greater emphasis has been given to dissertation project that lasts over the period of two semesters. Active involvement of research scholars in dissertation project and continuous efforts of the faculty members, who are seasoned researchers, in improving the quality and scope of research, provide stimulating and vibrant environment for learning. Financial assistance from DBT, DST, AYUSH, ICMR, Govt. of India, GSBTM and GUJCOST, Govt. of Gujarat in addition to NERF, in form of research grants to the faculty members and infrastructure grant (FIST) to address challenging biological problems, has helped us to modernize our laboratories and improve our infrastructure with high-end instruments. This has, in turn, catapulted our efforts to impart quality training to our students with hands-on experience on these instruments. M. Sc. students graduated from our institute are trained well, and acquire the knowledge and skills needed to assume roles in various areas of Biology as academic educators, scientists in both academia and industry, members of decision-making bodies, business and management teams in Government and Industries, Bio-entrepreneurs, public and private organizations that deal with social, ethical and legal issues in Biotechnology. The campus placement of our students is the reflection of their academic success.

I thank you for choosing our MSc programmes and wish you all the success in all your endeavors and for your future career.

Prof. Sarat K. Dalai

Director, Institute of Science & Dean, Faculty of Science





About The Institute Of Science

Institute of Science, Nirma University (ISNU) was established in 2004 with the aim of providing quality education to post-graduate students whose career objectives went beyond academics.

The institute offers the Master of Science in three branches of biological sciences; Bio- technology, Biochemistry and Microbiology as well as Doctoral programme in Biological Science. Students are provided broad training in biological science encompassing ethical, social, and legal aspects to help them explore wide career opportunities in addition to higher studies in the field of research.

The Institute of Science has dedicated Research Laboratories (for 50 Research Scholars) comprising a Central Instrumentation Facility, Animal Cell Culture Facility, Insectarium, BSL-2 facility and Animal House.

This has significantly contributed to DSIR recognition as a SIRO and FIST grant from the Department of Science & Technology, Govt. of India.

The M.Sc. students get excellent research training either by in-house dissertation project or internship through industries or research organizations during the 4th semester, many of these lead to publication. The Institutional Human Ethical Committee, Biosafety, and Animal Ethics Committee are in place for quality research. The quality and progress of the Institute is coordinated and ensured by the Scientific Advisory Committee (SAC) and Internal Quality Assurance Cell (IQAC).



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Scientific Advisory Committee (SAC)

Prof. Yogesh Shouche

National Centre for Cell Science, Pune.

Currently heading the GSBTM Task Force for funding translational research

Prof. Prashant Phale

Professor, IIT-Bombay

Prof. G. Nareshkumar

Retd. Professor, Department of Biochemistry,

MS University of Baroda.

Former Director (2009-2011), ISNU

Prof. Shailesh R. Dave

Admin Director and Adjunct Prof. XRF,

St. Xavier College campus, Ahmedabad

Dr. Anand Bhadalkar

Director, Savli Technology Incubator, GSBTM, GoG.

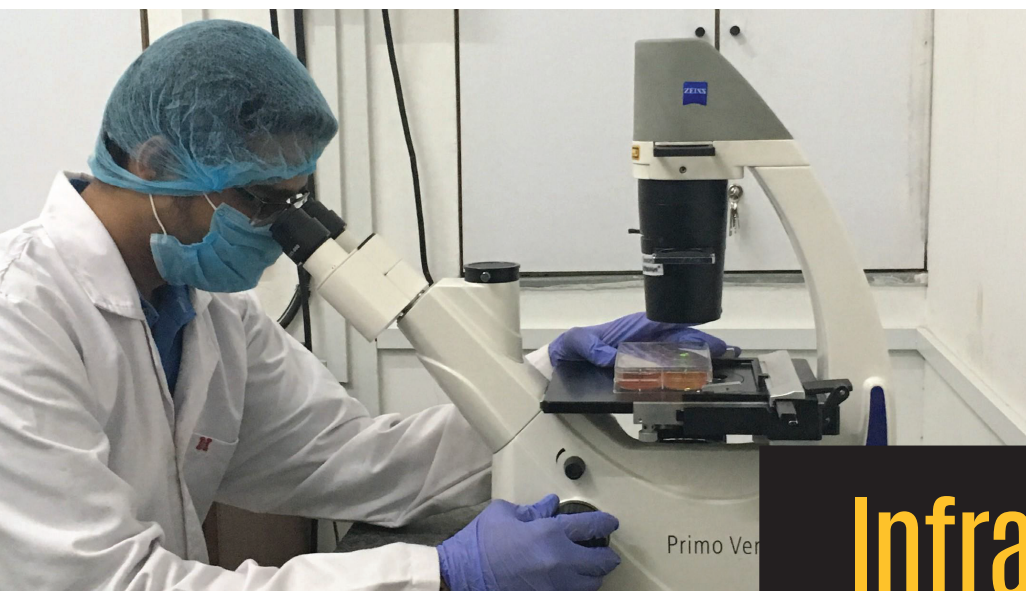
Dr. Narottam Sahoo

Advisor. Gujarat Council on Science & Technology (GUJCOST).

Dr. Laxmi Adhikary

Senior Vice President: - Head R&D

Intas Pharmaceuticals, Ahmedabad



Infrastructure/ Facilities

The Campus

The institute is located on Nirma University campus which is on the Sarkhej- Gandhinagar Highway. A 110-acre sprawling campus in surroundings provides a refreshing environment, stimulating intellectual alertness and creativity that is comparable to the top international institutions. The buildings have lecture theatres and class rooms equipped with multi-media and audio-visual aids, spacious seminar halls and auditoriums with varied capacities and hi-tech laboratories with latest equipment. The entire campus is Wi-Fi enabled. The campus provides an ambience that motivates the students to learn and grow.

Classrooms

The Institute has spacious classrooms, well-equipped with modern furniture and audio-visual equipment to facilitate effective learning. The classrooms are designed to promote maximum interaction between the faculty and the students. Each classroom has internet connectivity through wireless local area network.

Research Laboratories

The Institute also houses dedicated research laboratories for research scholars, a central instrumentation facility, animal cell culture facility, BSL-2 facility, insectarium and animal house. There is also a user-friendly institutional library with computers and internet facilities. The laboratories are equipped with modern instruments include Flow cytometer, Fluorescence Microscope, Fermenter, Thermal Cycler, Gradient PCR, Real Time PCR, ELISA Reader, CO2 Incubator, UV-visible Spectrophotometers, Luminometer, Biosafety Cabinet, Gel Documentation System, Ultra Sonicator, BiologTM, Hybridization Chamber, HPLC, Fluorimeter, Denaturing Gradient Gel Electrophoresis, Orbital Shakers, Refrigerated Centrifuges, -20oC & -80oC Freezers, Liquid Nitrogen Storage Facility, Lyophilizer, Cryostat microtome, Nanodrop, Compound-, Inverted-, and Dissection-Microscopes.

Computing Facilities

The central computer facilities consist of various high-end servers and more than 2800 plus systems running different platforms and 1200 plus Wi-Fi access points centrally managed, which are interconnected by network and running on backbone of fiber optic cables.

A secure wireless service is available across our all-campus buildings, classrooms, laboratories and cafeteria. University Campus has an internet leased line of 3.5 GBPs [3500 Mbps] (w.e.f. 01/07/2024). The University has

a 24X7 Wi-Fi facility in the campus buildings available to the faculty members, students' laptops and their mobile devices. The students can avail a free Wi-Fi on their laptops and mobile devices and Wi-Fi uses a secured web browser-based authentication.

The networked campus with state-of-the-art IT infrastructure, computing and communication resources, offers faculty members and students the facilities of e-mail, net surfing, up/down loading of web-based application, ERP systems, LMS system, besides helping them in preparing projects and seminars.

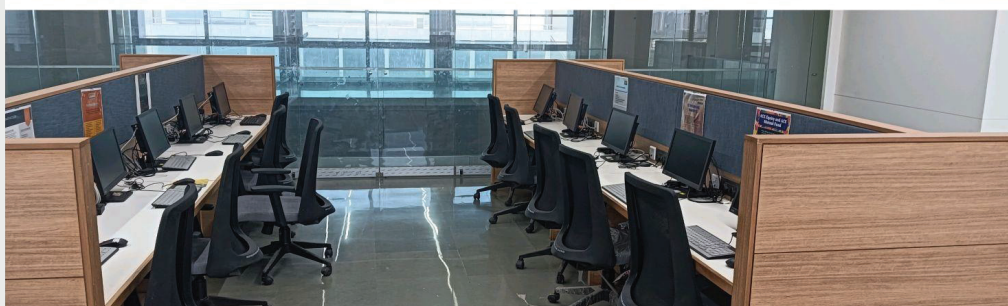
Google Workspace enabled collaboration is also available to all students and faculty round the clock.

Bioinformatics Lab Facility

Bioinformatics lab is developed recently with dedicated databases/software/pipeline/ solution in the areas viz. Genomics, Proteomics, Transcriptomics, Metabolomics, Structural Biology, System Biology, DNA Computing, Biostatistics, Computational Biology and Big Data Analysis.

The institute was also recognized (and funded) as a bioinformatics nodal center by Gujarat State Biotechnology Mission (GSBTM) to promote and develop skilled manpower in the field of bioinformatics.

Library Resource Center



Nirma University has an extensive library system, comprising six interconnected libraries equipped with state-of-the-art technology and resources. Nirma Central Library is now coined as NIMA Knowledge Centre (NKC).

NKC comprises Integrated Library Management System, seamlessly integrating library operations and services. Library comprises over 1,25,000 books and other library resources. About 80,000 e-books and 40 plus databases across different disciplines on the campus. Library provides multidisciplinary resources in one place. Library has provided spaces for different needs like,

Discussion rooms, digital lab, cubicles, light reading area, training room, etc.

NKC functions on an Open-Source Automation Software KOHA and RFID to manage its vast collection. KOHA has web-enabled Online Public Access Catalogue (OPAC), enabling users to inquire about resource availability while adhering to international standards such as MARC 21, Z39.50 encoding.

Registered library users have seamless access to digital resources both on-campus and remotely via RemoteXs. We have a dedicated page on the website www.library.nirmauni.ac.in which gives access to all e-resources of our library.

Since 2005, Nirma University has leveraged DSpace (Version 6.2), an open-source software solution, to manage internal Knowledge output like faculty papers, theses, dissertations, and others. This digitization initiative ensures the preservation and accessibility of valuable scholarly works. Through platforms like Shodhganga, digitized theses, institute bulletins, and other digital outputs are readily accessible on campus. The Institute of Technology Library hosts a wealth of digital content, including 537 video courses, 358 web resources, and a staggering 10 TB of data sourced from the National Programme on Technology Enhanced Learning (NPTEL). Leveraging cloud-based infrastructure, these digitized resources are easily accessible to library patrons. Additionally, the university has undertaken initiatives to digitize newspaper clippings and exam papers, enhancing accessibility for users within the 'nirmauni.ac.in' domain via Google Apps.

Centre for Advanced Instrumentation Facility

To cater to the need of researchers in different areas, the Central for Advance Instrument Facility (CAIF) was established at Nirma University in the year 2020. The sophisticated analytical instruments are operated and maintained by a dedicated and qualified group of technicians. This facility is open to all researchers from universities, academic institutes, and industries in Gujarat.





Amenities

Hostels

The University has separate hostels for boys and girls. Both the hostels are located on the campus. The hostel rooms are spacious and well-furnished. The hostels have sports and other recreational facilities, such as cable TV, common room for interaction, etc. All the hostel rooms have intranet and internet connectivity round the clock. The hostel mess is outsourced to a professional caterer. Only vegetarian food is served in the mess and non-vegetarian food is not allowed. Further consumption of tobacco, narcotic drugs and alcoholic beverages is strictly prohibited. The hostel residents are expected to adhere to the hostel rules and regulations.

Canteen

Canteens are located within the university campus and within close proximity of the Institute, which provides hygienic and wholesome food, snacks and beverages, etc.

Bank

A branch of the Kalupur Commercial Co-operative Bank Ltd., a scheduled bank with ATM facility is located on the campus.

Medical Facility

There is a non-resident doctor who visits the campus regularly on weekdays. University also has its own Ambulance available on campus.

Playgrounds

The Institute has a volleyball court, a lawn tennis court, a basketball court, a football and cricket ground, a table-tennis room and a well-equipped modern gymnasium.

Transport Facility

The Institute provides transport for the students and the staff for all the areas of the city. For this the university has its own buses, which offer services for both pick-up and drop-off.



Academic Programmes

Masters Programmes Doctor of Philosophy (PhD)

Master's Degree

The Institute offers Master's Degree Programme in the following disciplines:

1. Biotechnology | 2. Biochemistry | 3. Microbiology

The aim of the programmes is to mold future biotechnologists, biochemists and microbiologists, who could contribute to the field of biological sciences through their innovative, scientific and leadership skills.

Curriculum

The Curriculum has been designed to provide a balance among the theoretical as well as practical aspects required for a thorough understanding covering the basic as well as recent advances in the field of biological science.

The members of the academic bodies involved in the curriculum designing and updating are a mixed consortium of academic peers with vast experience, alumni, and faculty members. Modifications and up-gradation of the curriculum are constantly being undertaken. Suggestions are also invited from peers from scientific, academics, research, and industry. The curriculum consists of compulsory (core), elective, and supplementary courses. The unique feature of the curriculum is research projects.

The reforms pertaining to the curriculum have been brought upon looking into the guidelines of UGC and the recent development in the international scenario. Institute has also made special provisions of offering remedial teaching wherever necessary.

The Institute has also adopted the Outcome-Based Curriculum to enhance its Teaching and Learning and Continuous Evaluation throughout semesters.



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Master's Degree - Curriculum

FIRST YEAR

M. Sc. Biochemistry

M.Sc. Biotechnology

M.Sc. Microbiology

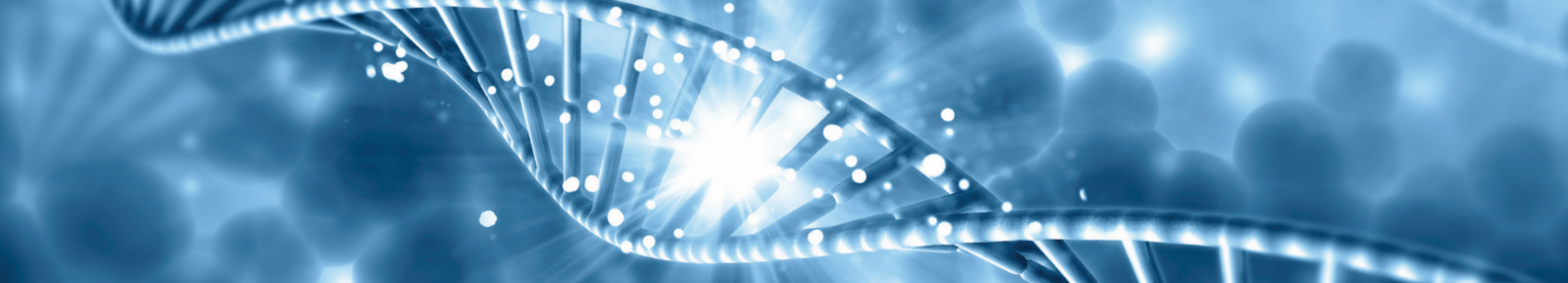
Semester I

Cell Biology and Molecular Biology	Cell Biology and Molecular Biology	Cell Biology and Molecular Biology
Immunology	Immunology	Immunology
Metabolism	Metabolism	Metabolism
Human Physiology	Human Physiology	Human Physiology
Microbiology	Microbiology	Microbiology
Laboratory I	Laboratory I	Laboratory I
Supplementary Course	Supplementary Course	Supplementary Course

Semester II

Neurobiology	Industrial Microbiology & Fermentation Technology	Industrial Microbiology & Fermentation Technology
Bioanalytical Techniques	Bioanalytical Techniques	Bioanalytical Techniques
Genetic Engineering	Genetic Engineering	Genetic Engineering
Developmental Biology and Reproductive Physiology	Human Genetics	Microbial Genetics
Elective I	Elective I	Elective I
Laboratory II	Laboratory II	Laboratory II





Master's Degree - Curriculum

SECOND YEAR

M. Sc. Biochemistry	M.Sc. Biotechnology	M.Sc. Microbiology
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Semester I

Endocrinology	Animal Biotechnology	Molecular Microbial Physiology
Genomics and Proteomics	Genomics and Proteomics	Genomics and Proteomics
Research Methods	Research Methods	Research Methods
Elective II	Elective II	Elective II
Elective III	Elective III	Elective III
Elective IV	Elective IV	Elective IV
Laboratory III	Laboratory III	Laboratory III

Semester IV

Dissertation/Industry internship	Dissertation/Industry internship	Dissertation/Industry internship
----------------------------------	----------------------------------	----------------------------------

During summer, supplementary learning activities and / or practical training are planned and students have to compulsorily take up summer internships. Dissertation projects are also undertaken over the last two semesters when students undergo rigorous re- search training under the guidance of the faculty members and are exposed to modern high-end instruments.

List of Elective Courses

- Nanobiotechnology
- Vaccinology
- Molecular Medicine
- Cancer Biology
- Medical Microbiology
- Agriculture & Environmental Microbiology
- Microbiome in health and disease
- Structural Biology and drug discovery
- Molecular toxicology
- Microbial Diversity & Systematics

Supplementary Courses

- Scientific Communication-I

- Scientific Communication-II

Pedagogy

The Institute makes use of an appropriate mix of pedagogical tools to train the students to handle professional responsibilities. These include lectures by an appropriate mix of in-house and visiting faculty, expert lectures, discussions, seminars, project assignments, and a visit to industries. Continuous evaluation and counseling are important parts of the academic program.

The Approach to Learning

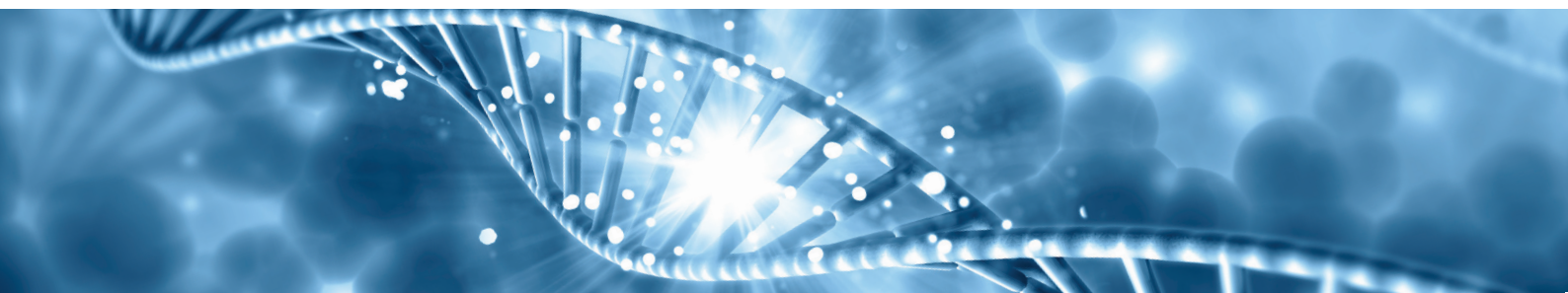
- Outcome-Based Education through Outcome-Based Teaching and Learning, Curriculum, and Assessment
- Credit-based Semester System with weightage of different components of study
- Learning through Classroom Teaching, Practical Work, Industry Visits, Project Work, and Dissertation Work
- Academic Rigor and Innovative Pedagogical Tools
- Faculty Guidance and Advisory System with faculty as counselors to students
- Continuous Enhancement of Communication Skills
- Continuous up-gradation of state-of-the-art knowledge and skills
- Active participation of students in creative co-curricular activities

Course and Assessment

Nirma University has provided a credit-based semester system. It is devised to motivate students for systematic and continuous study. Term assignments, laboratory, and project work are given great importance and are continuously assessed. In addition to continuous evaluation, Semester End Examinations are conducted for theory subjects.

Admission Procedure

Number of Seats:	
Masters in Biotechnology	40
Masters in Biochemistry	25
Masters in Microbiology	25



Eligibility and Admission Criteria

A student seeking admission to any of the mentioned Programmes must fulfill the following criteria:

The candidates should have Bachelor's degree under 10+2+3/4/5 pattern of education in Chemistry, Physics, Biochemistry, Botany, Zoology, Microbiology, Life Sciences, Environmental Sciences, Biotechnology, Agricultural, Veterinary, Fishery & Dairy Sciences, Pharmacy, Medicine (MBBS), BDS, Bioinformatics, Genetics, Medical Laboratory Science, BHMS, BAMS, B. Tech./B.E. Bioscience, Physiotherapy and Biomedical Engineering with at least 50% marks as aggregate of all the semesters / years. Candidates who have appeared for the final semester of qualifying examination can also apply. In such case, the candidates are required to submit the results as soon as the results are available either by fax or by email (scanned image).

During the counselling, if the applicant has passed the qualifying examination from the University other than Nirma University, he/she will be required to obtain Eligibility Certificate from Nirma University. The arrangement for obtaining the same will be made on the spot-on payment of Rs.1000/- at the time of admission.

Application

The interested applicants are required to fill the online application form which is available on our Nirma University website (<https://admissions-is.nirmauni.ac.in/student/>). The application form fee is Rs. 1250/- (nonrefundable) which is also to be paid online.

Selection Procedure

Admission is granted purely based on merits obtained in the common Entrance Test conducted by Nirma University. The candidates will be given provisional admission at the time of counseling, and the same will be confirmed if they secure a minimum aggregate of 50% marks after the declaration of B.Sc. final results.

Fee Structure

The Tuition Fees for:	
M. Sc. Biochemistry	Rs. 210,000/- per annum
M. Sc. Microbiology	Rs. 210,000/- per annum
M. Sc. Biotechnology	Rs. 210,000/- per annum

Other Charges/Deposits Applicable for all programmes

Registration PG	Rs. 1000/- (One time)
Refundable Security	Rs. 10000/-



of fees paid as per UGC notification on “Remittance and Refund of Fees and other Student Centric Issues:

Sr. No.	Percentage of refund of Aggregate Fees*	Point of time when notice of withdrawal of admission is served by the student to the institute
01.	100%	15 days or more before the formally notified last date of admission
02.	90%	Less than 15 days before the formally notified last date of admission
03.	80%	15 days or less after being formally notified last date of admission
04.	50%	30 days or less but more than 15 days, after being formally notified last date of admission
05.	00%	More than 30 days after being formally notified last date of admission

(*Inclusive of course fees and non-tuition fees but exclusive of security deposit)

(# an amount, not more than 5% of aggregate fees, subject to a maximum of Rs. 5000/- shall be deducted as a processing charge from the refundable amount. All the disputes are subject to Ahmedabad jurisdiction only.

International Students

• CHILDREN OF INDIAN WORKERS IN GULF COUNTRIES AND SOUTH EAST ASIA (CIWGC-SEA)

The candidates whose parents are working in Gulf countries or South East Asia are only eligible under this category.

• PERSONS OF INDIAN ORIGIN (PIO)

The persons who are citizens of other countries (except Pakistan and Bangladesh) who at any time held an Indian Passport, or who or either of his parents or any of his grandparents was a citizen of India by virtue of the provisions of the Constitution of India or Sec 2 (b) of Citizenship Act, 1955 (Act No. 57 of 1955) are only eligible under this category.

- **Foreign Nationals (FN)**

The citizens of all countries other than India, who are not of Indian origin as defined under PIO are eligible under this category.

10% supernumerary seats are available for admission to PIO (Persons of Indian Origin) & Foreign students. Out of this about one-third i.e. 5% is reserved for Children of Indian Workers in Gulf Countries and South East Asia (CIWGCSEA).

A candidate seeking admission to these seats should also meet the eligibility criteria. All admissions will be on merit basis.

- The fee for PIO & Foreign students is US\$ 5000 or equivalent Indian Rupees per year. The fee for Children of Indian Workers in Gulf countries and South East Asia (CIWGCSEA) and South Asian Association for Regional Co-operation (SAARC) is US\$ 5500 or equivalent to Indian Rupees per year.
- A one-time processing fee of Rs. 30000/- (non-refundable) is to be paid by PIO / Foreign students, Children of Indian workers in Gulf Countries and South East Asia (CIWGCSEA), and South Asian Association for Regional Co-operation (SAARC).

For further details, please contact Office of International Relations

Doctor of Philosophy (Ph. D.)

In its quest to promote excellence in the field of Science, the Institute offers full-time and external Doctoral programme in science with an emphasis to unravel the problems related to health, agriculture, and environment and to train highly skilled manpower for research and teaching. The programme is offered in the field of Biochemistry, Biotechnology, and Microbiology. The current thrust areas for full-time Ph. D. programme are Immunological Memory, Mucosal Immunology, Cancer immunology, Animal Toxicological Studies, Anticancer Therapeutics, Biodegradation, Bioremediation, Microbial Diversity, Multi-Drug Reversal Studies, Antimicrobial Resistance, Metabolic disorder, Diet induced diabetes, Gut Microflora, Liver inflammation etc.

Eligibility and Admission Criteria:

The candidates holding Masters' Degree or equivalent with 55% or equivalent grade from a recognized university will be considered eligible for registration for the Degree of Doctor of Philosophy in the relevant programme.

If the applicant has passed the qualifying examination from a university other than Nirma University, he/she will be required to obtain a provisional eligibility certificate from Nirma University on payment of Rs. 1000/- and the students who are granted admission will have to submit the original migration certificate within six months from the date of admission.

Admission Procedure:

The University will invite applications from the candidates through advertisement in the press or on the website. The Candidates, who intend to register for Ph.D., have to apply in the prescribed proforma. Selection is done through entrance test: written test will be conducted for the eligible candidates and is followed by a presentation by the candidates and a personal interview by a committee. The component weightage of the selection will be as under while making the selection:

Weightage for Entrance Test:	70%
Weightage for Personal Interview:	30%

Sub component weightage in Personal Interview shall be as under:

Literature Survey:	35%
Innovation in Research:	20%
Discussion:	10%

The candidate who does not meet 50% of the total assessment score will not be considered for admission. The candidate who obtains 50% and above will be considered on merit based on the number of vacancies available. However, the candidates who have passed the National Level Test like UGC/CSIR(JRF) examination / NET / SLET / GATE/teacher fellowship holder, M.Phil, etc or its equivalent shall be exempted from appearing in the written test and they will be considered deemed to have earned 35% score in the written test.

Coursework:

The students registered for the doctoral program have to complete coursework that carries a total of 16 credits (15 hours per credit). The coursework comprises five subjects including a compulsory course on research methodology and research ethics. The students registered for their Ph.D. are expected to complete their coursework within one year from the date of registration. The specialized course on Ethical practices in research and publication is conducted at university level.

The regulations for Ph.D. programmes are available on the website under section "Academic Regulations for Ph.D. (Full-Time & External) students".

Research At The Institute

The Institute has been actively involved in research work since the start of its research programme in 2007. Currently, 32 full-time Ph.D. students presently working at the Institute, in addition to that final semester M.Sc. students also contribute to research during their dissertation project work.

The faculty of the Institute have University Aided Research Projects and also Externally Funded-Projects. During the last academic year, 21 papers in international journals and 12 book chapters have been published. The students have published their research work in journals of repute like Journal of Immunology, Journal of Bioscience and Bioengineering, International Journal of Human Genetics, Carbohydrate Polymers, Scientific Reports, BMC Complementary, and Alternative Medicine. Ecotoxicology & Environmental Safety, Behavioral Brain Research and Small GTPases, etc.

Sr. No.	Thrust Area of Research	Environmental Biotechnology
01.	Non-communicable Diseases	<ul style="list-style-type: none"> Genetic Disorders Cancer Diagnosis and Therapy Tumor Immunology Diabetes and Metabolic Disorders
02.	Infectious Diseases	<ul style="list-style-type: none"> Antimicrobial Resistance Malaria
03.	Environmental Biotechnology	<ul style="list-style-type: none"> Hydrocarbon Bioremediation Microbial Fuel Cell and Wast water Treatment



Research Projects

In addition to various distinct features, the Institute of Science also has to its credit various externally funded research projects.

Completed Research Projects

Until now the institute has completed extramural funded projects worth rupees around 14 crores.

- Exploring the colonization of non-rhizobia and understanding the fate of rhizobacteria during rhizobial infection in mung bean. DBT, Govt. of India.
- Diversity and plant promotion abilities of Actinomycetes in the wheat rhizosphere in Gujarat region. GSBTM, Govt. of Gujarat.
- Identification of CD8+T cell – specific to liver-stage antigens of Plasmodium berghei to understand anti-malarial protective immunity. GSBTM, Govt. of Gujarat.
- Understanding the nature of liver-stage specific CD8+T cells generated following infectious sporozoite challenge that ensure long-lived protection against plasmodia infection. DBT, Govt. of India.
- Molecular basis of succinate mediated (catabolite) repression of mineral phosphate solubilization in nitrogen fixing Klebsiella pneumonia. DST, Govt. of India.
- Biochemical basis of repression of MPS phenotype in rhizobia. GSBTM, Govt. of Gujarat.
- Ideopathic mental retardation and dysmorphism: Karyotypic and UPD Analysis. GSBTM, Govt. of Gujarat.
- Generation of thermostable variants of a mesophilic amylase by directed evolution and their characterization. GSBTM, Govt. of Gujarat.
- Reconstitution of novel TK/NOG mice with 'Humanized Liver' to study liver stage infection of Plasmodium falciparum. SERB-DST, Govt. of India.
- Determination of specific absorption coefficient for the dominant macro algal species of Indian coastal water- A step towards developing bio markers and pigments algorithm. DST-SERB, Govt. of India.
- Infectious nature of Plasmodia modulating the innate response of host in liver stage infection deciding the fate of adaptive immunity. DST, Govt. of India.
- Development of Chimeric IL-15 to improve its bioavailability and efficacy. DBT, Govt. of India.
- Regulation of MHC II expression: Immunity to malaria. DST- SERB, Govt. of India.
- Role of Synatogenic Adhesion Molecules (SAMs) for insulin secretion during Diabetic and Hypoglycemic condition. DST, Govt. of India.
- Investigation of the regulatory role of miR-712 in inflammation induced skeletal muscle insulin resistance. DBT, Govt. of India.
- Elucidating the role of short chain fatty acids (SCFAs) and its recep-

- tors in high sugar diet-induced type II diabetes. GSBTM, Govt. of Gujarat.
- Biotechnological applications for Transforming the most abundant bacteria from industrial waste waters of South Gujarat for bioremediation. DBT, Govt. of India.
 - Development of neoadjuvant from medicinally important bamboo plants for radiotherapy in cancer. AYUSH. Govt. of India.
 - Investigating the role of Crc in regulation of PQQ GDH involved in MPS phenotype of *Acinetobacter* sp. and its repression. DST-SERB, Govt. of India.
 - Understanding the spatiotemporal dynamics and ultrastructure details of ECM degrading device “amoebic invadosomes” and their crosstalk with Rab GTPases and cell surface proteases trafficking machinery in *E. histolytica*. DST-SERB, Govt. of India
 - Understanding the functional role of vacuolar ATPases in trophocytosis and tissue invasion mediated by *Entamoeba histolytica*. DST-SERB, Govt. of India.
 - Investigation of the molecular basis of enhanced EPS production by *X. campestris* under the influence of audible sound. GUJCOST.
 - Investigation on QS modulatory potential of *Herboheal*. SRISTI-DBT-BIRAC.
 - Digital image classification in human chromosome analysis: Computer approach to automation. ITNU Idea Lab.
 - Survey and development of strategy for removal of nutrients from stagnant water bodies in and near Ahmedabad region. iCreate.
 - Evaluation of Boric Acid induced male reproductive toxicity and ascertaining reversals potential of hydro-alcoholic extracts of *Eclipta Alba*. GUJCOST.
 - Comparative study of the nature of innate immunity generated in response to attenuated (yspz) vs. infectious sporozoite in plasmodia infection. GUJCOST.
 - Down's syndrome In Gujarat: Molecular Probing In Origin. GUJCOST.
 - Demographic survey of major cities of Gujarat for creation of Diabetic map. GUJCOST.
 - To investigate the expression of T cell and their subsets (Th1, Th2, Th17 and Treg) cells in melanoma. Nirma University.
 - Understanding the functional role of Sar1-like GTPases homologue from *Entamoeba histolytica*. Nirma University.
 - Identifying small molecule inhibitors of LasR in *P. aeruginosa*. Atomwise Inc., USA
 - Identifying small molecule inhibitors of NOR in *P. aeruginosa*. Atomwise Inc., USA
 - Investigation of the regulatory role of miR-712 in inflammation induced skeletal muscle insulin resistance. DST-SERB, Govt. of India.
 - A Networking Project on “Engineered bioremediation approaches for onsite treatment of soil contaminated with crude oil”, DBT, Govt. of India.
 - Development of Integrated Wastewater Treatment Systems Using Alternative Innovative Approaches of Microbial Fuel Cells, Magnetic Nanoparticles and Vermicomposting with Water Hyacinth for Secondary Sludge Management, GSBTM, Govt. of Gujarat.
 - Bone metastatic signature in Indian breast cancer patients: A transcriptome based study. DST, Govt. of India (WOS-A Scheme)
 - FIST Infrastructure Grant received Rs. 90,00,000/- to Institute of Science, Nirma University from Department of Science and Technology, New Delhi.
 - Studying Immune Adjuvant Potential of chimeric IL-15. GSBTM, Govt. of Gujarat.
 - Understanding the Role of B cells in Cross Presentation of Plasmodium Liver-stage Antigen(s) to CD8+ T cells. Dept. of Biotechnology, Govt. of India.
 - Prospective profiling of circulating dendritic cell subsets for early detection of early onset and late onset pre-eclampsia among pregnant women. SERB, Govt. of India.





Ongoing Research Projects Follow the pattern of writing as it is for completed projects.

Ongoing Major Research Projects funded by External Agencies:

- Combination of chimeric IL-15 and recombinant IL-12 as immunotherapy for lung and colon cancer. GSBTM, Govt. of Gujarat.
- Therapeutic Targeting of Androgen Receptor as a biomarker to improve the clinical outcomes of Triple-Negative Breast Cancer by GSBTM, Govt. of Gujarat.
- Repositioning Doxycycline as Anti-Cancer Therapy and Exploring its synergy with extracellular ATP manipulation in Breast Cancer: Pre-clinical and Early clinical Exploration by GSBTM, Govt. of Gujarat.
- Exploring the Molecular and Cellular Pathways Responsible for Pre-Metastatic Niche to Organotropic Metastasis in Triple Negative Breast Cancer: Uncovering the Role of MicroRNAs by GSBTM, Govt. of Gujarat.
- Studying the PRRs (TLRs) involved in maintaining the liver-stage specific memory CD8+T cells that ensue the long-lived protection against Plasmodium infection by ICMR, New Delhi, Govt of India.
- Study on the combination therapy with antibiotics & anti-virulent agents having synergistic effects and probable reverse selection for antibiotic resistance in Vibrio cholerae/ESKAPE pathogens by GSBTM, Govt. of Gujarat.
- Profiling of Interferon -Alpha for Early Prediction of Maternal Anaemia during Pregnancy by Council of Scientific & Industrial Research (CSIR).

Major Research Projects funded by Nirma University

- Study of constitutional genetic markers in familial cancer cases.

Minor Research Projects funded by Nirma University

- Oligomerization – a strategy to enhance the immunogenicity of protein antigens.
- Screening of antimicrobial resistant bacterial strains from street food sources of Ahmedabad,
- Development and formulation of novel inhibitors of clinically relevant cysteine proteases: accelerating drug discovery against amoebiasis.

SHAPING A BETTER FUTURE

INFORMATION
BOOKLET 2025



NIRMA
UNIVERSITY
www.nirmauni.ac.in/ITNU

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Interdisciplinary Research Initiative

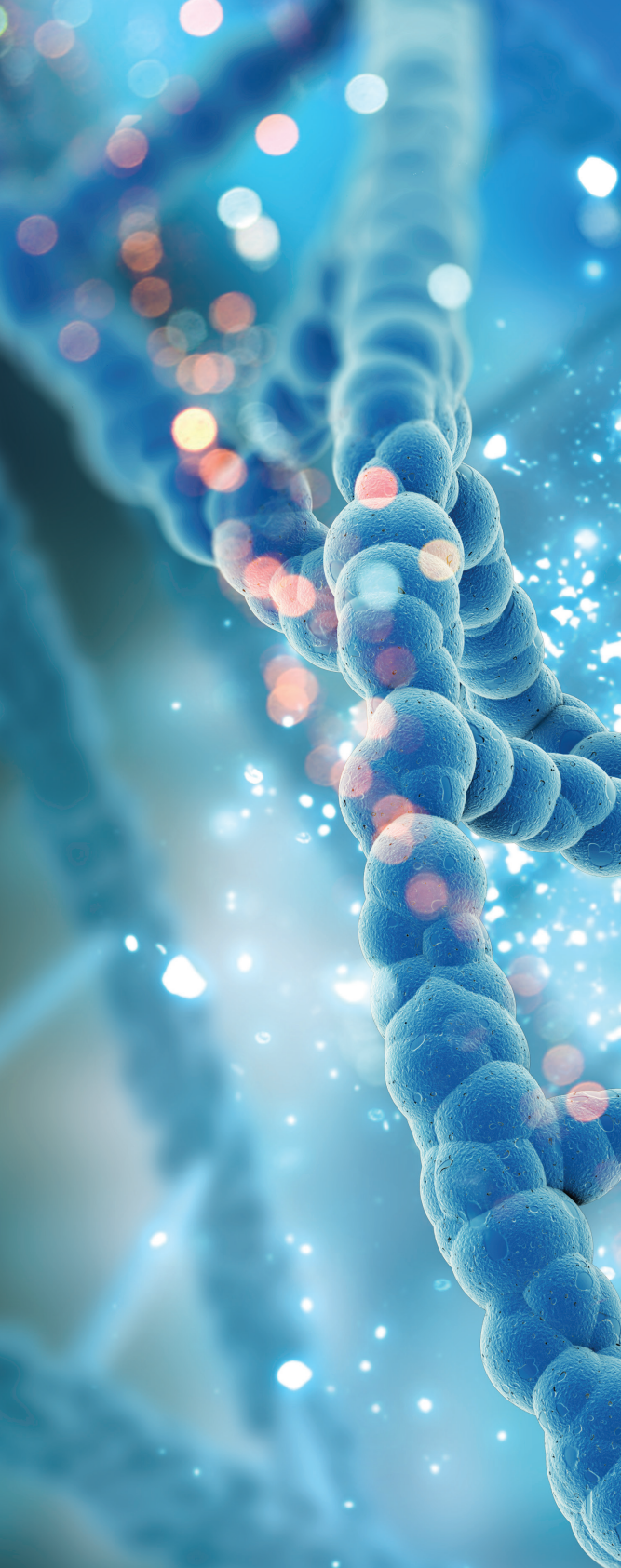
Discipline-specific research is conventional and core approach in the field of basic science, however; when researchers adopt an interdisciplinary approach and work as a team to address a problem, this innovative and collaborative work translates into applied outcomes of societal significance viz., better health management, energy requirement, reduction in pollution, environment friendly agriculture practices, etc. Faculty members of the Institute of Science are involved in interdisciplinary projects with the Institute of Pharmacy, and the Institute of Technology in key areas.



Linkages and Collaborations

The University, recognizing research as the main drivers of success in an academic setting, established a separate Faculty of Doctoral Studies and Research to initiate research programmes independently or in collaboration with national laboratories that have potential in terms of infrastructure and expertise. As a beginning, such collaboration exists with institutions like Physical Research Laboratory, Space Application Centre, B.V. Patel Pharmaceutical Education & Research Development Centre, Ahmedabad, Forensic Science Laboratory, Gandhinagar, Cadila Pharmaceuticals Ltd, Ahmedabad and INTAS Biopharmaceuticals Pvt. Ltd, Ahmedabad, Institute of Plasma Research, Bhat, Gandhinagar, NIPER, Gandhinagar, CSIR-NEERI, Nagpur; Assam University, Silchar, Assam; CSIR-NIO, Goa; CSIR-IITR, Lucknow; IASST, Assam; IIT-Bombay; IIT-Delhi; TERI, New Delhi; ONGC; Kadi University; VNSGU, Surat and SGPGI Lucknow.

Institute of Science, in addition to postgraduate courses, is also involved in various research activities. All the faculty members conduct Projects leading to the award of Ph.D. degree and research publications are supported through research grants by national and state funding agencies. The research is carried out using in house facilities as well as by the linkages, and collaborations with various reputed national as well as international universities, research institutes, and industry agencies.



National

Gujarat State Biotechnology Mission, GenXplore molecular diagnostic laboratory, M.S. University of Baroda, Ahmedabad University, Zydus Research Center, Charusat University, Central University of Gujarat, Gujarat Medical Education & Research Society, Gandhinagar, Indian Space Research Organization, ISRO Ahmedabad, Central Salt & Marine Chemicals Research Institute, Bhavnagar, Centre for DNA Fingerprinting and Diagnostics, Hyderabad; AGILE lab, New Delhi; Indian Institute of Advanced Research, Gandhinagar; National Institute for Research in Environmental Health, Bhopal; Dr. Reddy's Institute of Life Sciences, University of Hyderabad, Hyderabad; ISTR-Interdisciplinary Science and Technology Research Academy, University of Pune, Pune; National Institute of Immunology, New Delhi; Jawaharlal Nehru University, New Delhi; International Centre for Genetic Engineering and Biotechnology, New Delhi; Indian Institute of Science Education and Research, Pune and Institute of Life Sciences, Bhubaneswar.

International

Theragen labs, Korea; National Institute of Health, USA; Johns Hopkins School of Public Health, USA, University of Massachusetts, USA; University of California, Berkley, USA; University of Texas Southwestern Medical Center, USA; Emory Vaccine, USA, University of Rochester Medical Center, USA.

Beyond Classroom

Expert Lectures

The institute is also arranging expert lectures on various subjects to enhance the knowledge of the students. The institute is also arranging eminent scientists/researchers to sensitize students to pursue their careers in research. These lecture series are held on various emerging research topics or the latest technology

Seminar

The students are motivated to present seminars on the latest developments in the field of science. Seminars enable students to develop many skills through the internet, e-journals, books, and journals on a specific topic. This helps to enhance their library reading, scientific writing, and presentation skills.

Industrial Training

Training is an integral part of the study to acquaint them with real-world problems. The students have to compulsorily go for internships in any industry during their summer break under the supervision and guidance of respective industry personnel. The faculty carries out monitoring and evaluation regularly. The institute also gives importance to projects, industrial visits, and training during vacations to support their curricular work.

Important Events hosted

With a view to provide an opportunity for its faculty and students to interact with eminent scientists from India and abroad, the Institute has been organizing a National Conference annually. During the last three years, the Institute of science has organized various events.

- Faculty development programmes on Genomics and Proteomics, Systems biology, and Advances in Microscopy in February 2015
- National Conference on Malaria Parasite Biology: Drug Designing & Vaccine Development in September 2016
- CCE workshop On “Molecular Biology Techniques: Cloning to Expression” in January 2017.
- Orientation Programme for the new batch (2017-2019) in July 2017.
- Foundation day Celebration and Public Lecture in September 2017.
- National Conference, “IMMUNOCON”, on Immune Mechanisms of Infectious Diseases and Beyond in December 2017.
- CCE workshop on “Wastewater- Characterization to Treatment” in March 2018.
- CCE Seminar series on CRISPR Cas9 in Genome Editing, March 2019
- Continuing Medical Education (CME) cum workshop on Flow Cytometry in Research and Health Care, under CCE, March 2020
- Faculty Development Programme on “Current Advances in AI, Systems Biology and 3D Bioprinting in Biomedical Research” from June 27th to 8th July, 2022.
- National Seminar “Cancer Immunotherapy” on 10th March 2023.
- National Symposium on “CME: Immunology in Health and Diseases” from 22nd to 23rd February, 2024.

Industry Institute Interaction Cell

Industry Institute Interaction Cell (III Cell) is established to provide close links with industries, contract research organizations, and other state and national level R & D organizations. The purpose of the cell is to find out the gap between the need of the industry and the end products of the institute. The cell is the bridge between the industry and the institute. One of the objectives is also to offer programmes fulfilling the needs of continuing education of industrial personnel. Industry institute interaction cell provides close links with industries. The placement of students for industry training/ projects during summer has been benefiting students to a great extent.

We believe in developing programmes, which provide a solution to real world problems with a strong desire of forging innovative alliances with industry to achieve synergy. III Cell imparts benefits to all components like students, faculty, institute, and industry by interacting closely with the industries. Students are exposed to the real world and learn the needs of their future careers. The III Cell is governed by the advisory committee; headed by the Director as a chairman, Heads of departments as members, and the Placement-Training Officer as a member secretary. III Cell facilitates students' visits to industries, industrial training, project placements & campus interview.



Placement Cell

Campus interviews are organized by inviting various companies for the placement the student for jobs. It fulfills a dual purpose, one for students securing their future careers, another for the industry securing the best fresh talent available in the region to train and mold them for the long-time needs of the employees. Various lecture series and workshops are organized by the placement cell for the students to prepare them for the campus interviews.

The Institute of Science has a Placement Committee comprising the Director of the Institute as Chairman, the Placement Officer, The Institute level Placement Coordinator, and Faculty and Student Representatives from the disciplines of Biotechnology, Biochemistry, and Microbiology.

To date students are placed in various reputed organizations like Zydus Research Centre, Sun Pharma, Intas Biopharma, Aakash Institute, Allen Institute, Nivea India, Ishaan Biosciences, Designmate, Amneal Pharma, etc. have recruited our students in recent years. To ensure a smooth transition from Academics to the corporate world, the institute grooms students on Interview etiquette, Resume building, Communication skills, presentation skills, etc.

Alumni Association (ISNUAA)

The first eighteen batches of postgraduate students have graduated from the Institute. All activities necessary to fully integrate the Alumni Association with the development efforts of the Institute are being actively planned. Regular contact with the alumni is maintained and efforts for their full participation in the activities of the Institute are being made. ISNUAA encourages interaction of alumni with the current students which is very useful for them.

PROBODHAN, an event for career guidance involves interaction of ISNU alumni members with the current M.Sc. students. The Ph.D. students at various levels of their research answer queries related to the scope of the research and other career options, national competitive exams, rules, schemes for fellowships, etc.

An annual alumni meet involves a get-together over lunch, a cultural programme, revival of memories, experience sharing, and guidance. The visit to my alma-mater is cherished by all. Online talks by alumni from research, industry, and journalism fields were arranged.

The Alumni of the Institute are well placed in companies as well as pursuing their career in research institutes like NIPER, Chandigarh; JNCASR, Bangalore; TIFR, Bangalore; CCMB, Hyderabad; IISER, Bhopal; Institute of Science, Hyderabad; Texas A and M University, USA; Griffith University, Australia; Laval



University, Quebec, Canada, etc.

The alumni are well connected thru' Alma Connect, LinkedIn group, and other social media specially developed for them.

| Students' Activities

Orientation For Freshers

The Institute organizes a unique orientation programme of one to two weeks for new entrants. Various lectures on time management, coping with stress, human relations, positive attitude, communication skills, etc. are delivered by eminent speakers to the students. This programme enables the students and faculty to interact with each other, and understand each other and it also provides a smooth transition from undergraduate life to a new environment of post-graduate studies.

Convocation

Nirma University organizes a grand convocation ceremony for awarding degrees and gold medals to the postgraduates and Ph. D. Students of the institute.

Co-curricular and Extra-curricular Activities

Co-curricular & extra-curricular activities play an important role in the all-round development of professional students. They indeed serve as an adjunct to the rigorous coursework. The objectives of these activities are: -

- To promote disciplined corporate, intellectual, civil, and cultural life amongst students and the faculty of the institute
- To foster activities to bring out creativity, promote the study and discussion talents of the students
- To promote the study and discussion of subjects of national and international importance
- To create awareness amongst the students about their professional identity and their obligations to the profession and society at large
- To create a strong spirit of teamwork and cohesiveness by organizing various cultural, literary, and professional activities along with the academic routine
- Students have participated in various national, international, and state-level competitions and have also won awards.

Institute of Science organizes an Annual Cultural Festival RENAISSANCE under the auspices of the Board for Student's Welfare, Nirma to provide a platform for the students to showcase their talents and be rooted in the culture. Various competitions are held under Theatre, Musical, Dance, Literary, and Fine arts events which include Mime, Skit, Debate, Elocution, Collage, Spot Painting, Cartooning, Rangoli, Solo Dance, Group Dance, Folk Dance, Solo song, Duet Song, Group Song. The Fine Arts events cover Collage, Poster Making, Rangoli, and On-the-spot painting. Renowned personalities in the fields are invited to judge the events. Winners are awarded trophies and certificates.

Every year intra-institute and inter-institute sports events are organized for students, wherein they get the opportunity to participate in team games (Cricket, Volleyball, etc.) as well as athletic events (running and throwing events). Participants and winners are awarded certificates and trophies. March Past by the participants at the start of the university-level sports festival is also organized. Students are also provided the opportunity to contribute as volunteers during these events.

De Novo magazine

"De Novo" is an annual publication of ISNU. The Editorial Board consists of selected students, a faculty coordinator, and Director. The magazine gives a platform to nurture creativity, literary acumen of students who may be budding journalists, writers, poets, and editors. Faculty and staff members also contribute articles of current significance, events of the institute, good reads, etc.

Institute of Science Student Association (INSSA)

Institute of Science, Nirma University has a student association INSSA since October 2015. The association consists of nominated student representatives including both the postgraduates and Ph. D. students and faculty members as mentors. INSSA serves as a bridge between the administration, faculty, staff, and students. It aims to strengthen communication, give common platforms, enhance skill and knowledge and promote a culture of academic excellence, and provide opportunities to expand their horizons, reach their full potential, discover their talents, and change the world around them.

Since its commencement INSSA has organized events like Scientific Retreat, Secret Santa, Donation Drive, Days celebrations like Twin's Day, Traditional Day, Mis-match Day, Signature Day, Women's Day, etc.

Students' Activities

Life at Campus

The years that students spend at the campus are designed to be the most fulfilling years in their life and would serve as the best lifelong memory of their life. Life at the campus is vibrant and exciting, transforming students into all-round individuals. Various students' activities like cultural festivals, ras-garba, quizzes, elocution, debates, sports, annual day, class picnics, etc. are regularly organized by the institute with adequate involvement of faculty members. Besides co-curricular, extra-curricular, and social activities, days like Independence Day, and Republic Day are celebrated on the campus. Festivals like Garba, Ganesh Chaturthi, Diwali, Durga Pooja, Holi, New Year's Day, and Kite flying are celebrated with full spirit and joy by the students on the campus.

| Ragging - Zero Tolerance

Ragging is strictly prohibited inside and outside the University campus. The Anti-Ragging Committee constituted for this purpose by the Institute is empowered to take immediate action against any untoward action and also to counsel the fresher. Students seeking admission shall have to furnish an undertaking in this regard. To enhance familiarity and to acclimatize the fresher to the academic and social environment of the campus, the Institute organizes an orientation session in the first week of the new academic calendar.

Ragging: Definition

Any disorderly conduct whether by words spoken or written or by an act which has the effect of teasing, or handling with rudeness any other student, in rowdy or undisciplined activities, which causes or is likely to cause annoyance, hardship, or psychological harm or to raise fear or apprehension thereof in a fresher or a junior student or asking the students to do any act or perform something which such student will not do in the ordinary course and which has the effect of causing or generating a sense of shame or embarrassment so as to adversely affect the physique or psyche of a fresher or a junior student.

The student will also be required to give an undertaking in the specified proforma provided with the students' handbook as an enclosure. It is to be filled up and signed by the candidate and his parent/guardian to the effect that he/she is aware of the University's approach towards ragging and the punishment to which he/she shall be liable if found guilty of ragging.

All the students admitted to the institute will have to observe and abide by the discipline rules prescribed by the University / Institute and he/she will submit to the disciplinary jurisdiction of the Head of the Institution / Director General (NU) and other competent officers or authorities or bodies of the University as the case may be and, in this respect, he/she has to submit the declaration in the Performa at the time of admission.

| Women Development Cell

In pursuance of the directions issued by UGC and MHRD, Govt. of India the Nirma University has set up a Women Development Cell (WDC) and prescribed norms to sensitize the community with regard to gender-related issues and create a gender-friendly environment at the campus.

| DISCIPLINE- The Keyword

The University has earned a name for quality education. This is due to the efforts and devotion of the well-qualified faculty of the University. The academic calendar for each year is notified in the beginning of each semester and is strictly adhered to. Students' attendance is compulsory and any shortfall is notified to the students and parents. It is expected from every student that he/she must conduct himself/herself with discipline, decency, and dignity both inside and outside the campus.

| Faculty Corner

Through a judicious recruitment policy and enlightened approach, NERF has ensured that the Institute is staffed by well-qualified and competent faculty to shoulder the responsibilities of maintaining high standards of education in the Institute. In keeping with the aims outlined in the mission statement, the faculty members remain fully conscious of their dual role both as teachers to efficiently impart technical knowledge to the students as well as counselors to guide them in their overall development.

| Faculty Development Programmes

The teachers are encouraged to update their knowledge and skills through various training and learning modes. Constant efforts are being made by the management to achieve this aim. Some of the initiatives taken in this direction are listed below:

- In-service registration to pursue Ph. D. programmes
- Participation in reputed Conferences and Seminars
- Participation in Collaborative Research Projects
- Promotion of Consultancy
- Training in Industries and Specialized Laboratories.
- To Organize and Conduct National/ State Level Training Programmes for Professionals



Faculty Profiles

Dr. Sarat K. Dalai (Professor)

Ph. D. in Immunology (Jawaharlal Nehru University, New Delhi) Experience: Post -Ph.D. Research: - 25 years
Teaching: 14 years **Area of Expertise:** T-cell Immunology

Email: sarat.dalai@nirmauni.ac.in

Research Interests: Our laboratory is working on the generation and maintenance of memory T cells. The major focus of our laboratory is directed toward understanding the nature of immune responses generated against Plasmodium liver-stage infection. Protective immunity against the malaria parasite can be generated experimentally or by natural infection but is short-lived. We have developed animal model(s) analogous to the natural infection encountered by people living in an endemic area and found that the protective immunity can be extended longer in immune-host receiving intermittent challenge of infectious sporozoite. We are pursuing studies to understand how the infectious challenge brings in qualitative changes in memory T cells ensuring long-lived immunity. We are also developing a novel immune-modulator to augment the generation of robust effector and memory T cell responses and maintenance of memory. In parallel, we are also developing alternative vaccination strategies for non-live vaccines to promote the generation of long-lived antigen-specific T cells. Our research is supported by DST & DBT, Govt. of India, and GSBTM & GUJCOST, Govt. of Gujarat.

Publications: <https://scholar.google.co.in/citations?user=aqljaoAAAAAJ&hl=en>

Dr. Sriram Seshadri (Associate Professor)

Ph.D. in Science (Reproductive Physiology) (University of Rajasthan, Jaipur)

Experience: Post Ph.D. Research – 21 years, Teaching – 24 years

Area of expertise: Liver Inflammation & Cancer, Understanding and manipulating Gut Microbiota, Metabolic Disorder, Colorectal Cancer

Email: sriram.seshadri@nirmauni.ac.in

Research Interests: My research interest includes understanding and manipulation of gut microbiome in metabolic disorder, liver inflammation and cancer. Currently, we are working on understanding the role of bile acid, its biosynthesis, metabolism and signalling and interplay with microbiome and miRNA. Our lab has used fecal microfloral transplantation for the reversal of metabolic disorders along with colonic pH specific microspheres loaded with chitosan and evaluated its effect on the pathophysiological, immunological conditions in diet induced type II diabetes. We are also trying to formulate the fecal microfloral transplantation for targeted delivery. Additionally, we are also exploring the combinatorial activity of FMT with metformin in diet induced diabetic animal models.

Publications: <https://scholar.google.co.in/citations?user=1qpb1isAAAAJ&hl=en>

Faculty Profiles

Dr. Vijay Kothari (Assistant Professor)

Ph.D. in Science (Plant antimicrobials) (Nirma University, Ahmedabad)

Experience: Post Ph.D. Research – 14 years, Teaching – 20 years

Area of Expertise: Bioactive natural products; Traditional Medicine (TM); Antimicrobial Resistance (AMR); Microbial response to sonic stimulation

Email: vijay.kothari@nirmauni.ac.in

Research Interests: We are investigating various traditional medicine extracts/ formulations for their possible anti-pathogenic activities. For assessing in vivo efficacy of these extracts, we are employing the nematode worm *Caenorhabditis elegans* as a model host. Molecular mechanisms underlining the anti-virulence efficacy of potent formulations are being elucidated by studying their effect on pathogenic bacteria at the whole transcriptome level. Our lab is actively screening various herbal as well as synthetic candidates for potential anti-pathogenic, anthelmintic, and nutraceutical activities. Additionally, we are investigating the influence of sonic-stimulation on different eukaryotic and prokaryotic microbes, with an aim to elucidate the molecular basis of microbial response to sound.

Publications: <http://scholar.google.co.in/citations?user=KtRI6p4AAAAJ>

Dr. Nasreen Munshi (Assistant Professor)

Ph.D. in Microbiology (Gujarat University, Ahmedabad)

Experience: Post-PhD. Research - 15 years, Teaching - 17 years

Area of expertise: Bioremediation, Biosensors, Microbial Fuel Cell

Email: nasreen.munshi@nirmauni.ac.in

Research Interests: Her research interest focuses on bioremediation, wastewater treatment, Biosensors and Microbial Fuel Cell. Common Effluent Treatment Plants (CETP) treating effluents from thousands of different industries face problems of refractory COD, mostly contributed by aromatic hydrocarbons. A bioprocess for hydrocarbon degradation in CETP wastewater was developed. Moreover, her lab is also developing biosensors which can detect the level of aromatic hydrocarbon pollutants present. Another type of pollutant, known as oily sludge which is rich in polycyclic aromatic hydrocarbons is generated during crude oil production and processing. As part of a networking project with eight Institutes of national repute, a bioremediation strategy was developed for its onsite treatment. It is currently being investigated for useful byproduct synthesis. She is also working in the field of Microbial Fuel Cell (MFC) using electrogenic bacteria for wastewater treatment. As PI/Co-PI, she has completed five major research projects funded by DBT, GSBTM, NU and SAC-ISRO, and two consultancy projects.

Publications: <https://scholar.google.co.in/citations?user=rpldrEMAAAAJ&hl=en>

I Faculty Profiles

Dr. Amee K. Nair, (Assistant Professor)

Ph.D. in Life Sciences (Neurosciences), (Cochin University of Science & Technology, Co- chin)

Experience: Post Ph.D. Research – 14 years, Teaching – 14 years

Area of Expertise: Neurodegenerative Disease and Metabolic Disorders

Email: ameenair@nirmauni.ac.in

Research Interests: Proper neuronal structure, morphology, receptor function, connectivity and nutrition are prerequisites for proper functioning of the nervous system. Demyelination due to neuropathy is a common debilitating complication of diabetes resulting in pain, decreased motility and amputation. Our research is an attempt to understand the generation and maintenance of myelin sheath and its critical regulation via insulin. Also, the cell to cell communication lapse in the pancreatic islet can lead to altered insulin secretion. Changes in the growth factors and neurotrophic factors and insulin signaling during diabetes will help to identify novel molecules that could be therapeutic targets for neuropathy and improve insulin secretion. Besides, we are also studying the molecular cause of delayed wound healing during diabetes and its herbal therapeutic intervention.

Publications: <http://scholar.google.co.in/citations?user=BVwm62EAAA&hl=en>

Dr. Heena V. Dave (Assistant Professor)

Ph. D. in Life Science- Cancer Biology (The Gujarat Cancer & Research Institute, Gujarat University)

Experience: Pre-PhD Research: 14years, Post-Ph.D. Research: 15 years, Teaching: 10 years.

Area of expertise: Identification of biomarkers for metastasis and drug resistance, 3D cancer cell models

Email: heena.dave@nirmauni.ac.in

Research Interests: Our laboratory is interested in the identification of prognostic bio- markers for breast cancer. The current projects focused on investigating key reasons for developing metastasis in breast tumors especially for bone metastasis in Triple-Negative Breast Cancers. We are also investigating the reasons for antiestrogen resistance/ insensitivity and trying to identify their underlying mechanisms. Our long-term goals are to identify comprehensive biomarkers/cocktail of biomarkers irrespective of the biological subtypes and their implications in selecting treatment strategies.

Publications: https://scholar.google.co.in/citations?user=_dxRqQ0AAAA&hl=en

Faculty Profiles

Dr. Aarthi Sundararajan (Assistant Professor)

Ph. D. in Microbiology, University of Tennessee, Knoxville, USA.

Experience: Postdoctoral Research - 7 years, Teaching – 3 years

Area of Expertise: Reproductive Immunology

Email: aarthi.sundararajan@nirmauni.ac.in

Research Interests: Dr. Aarthi Sundararajan has completed her Doctoral studies in Microbiology at the University of Tennessee, Knoxville, USA. During this time, she was also a visiting graduate student at the David H Smith Center for Vaccine Biology & Immunology, University of Rochester Medical Center, New York, USA. She has completed her Post-Doctoral studies at the Department of Microbiology and Immunology, Emory University/Emory Vaccine Center, USA. She has worked as a DST-sponsored Women Scientist and as an Adjunct Faculty at the Indian Institute of Public Health Gandhinagar (IIPHG), Gujarat. She joined the Institute of Science at Nirma University as an Assistant Professor, starting in December 2021. Her research area interests include reproductive immunology, reproductive endocrinology, viral immunology, and B cell immunology. As a DST-sponsored Women Scientist at IIPHG, she has worked extensively in the area of Maternal and Child Health. Her research lab at the Institute of Science, Nirma University focuses on understanding the immunology of pregnancy and labor, and pregnancy complications. The lab is also interested in understanding the role of infections and prenatal stress hormones in regulating birth outcome and child development.

Publications: <https://scholar.google.com/citations?user=HwKqI58AAAAJ&hl=en&oi=sra>

Dr. Shruti Chatterjee (Assistant Professor)

PhD in Microbiology from Osaka Prefecture University, Japan.

Experience: Postdoctoral Research - 11 years, Teaching- 2.5 yrs

Email: shruti.chatterjee@nirmauni.ac.in

Research Interests: Dr Shruti Chatterjee has completed her MSc in Marine Biology & Oceanography from CAS Marine Biology. Further completed PhD in Microbiology from Osaka Prefecture University, Japan. She has more than 20 yrs of research experience in Microbiology. Previously she was working as Pool Scientist at Council of Scientific and Industrial Research-Central Salt and Marine Chemicals Research Institute (CSIR-CSM-CRI), at Bhavnagar, Gujarat. She has also served as Scientist fellow at CSIR-National Institute of Oceanography, Goa. Dr Chatterjee also worked as an Assistant Professor at CSIR-AcSIR for teaching PhD students.

Her expertise is in Marine Microbiology and also constantly involved in the application-oriented research which can end up as an impactful product/technology in the area of Biotechnology. Dr Shruti works in the development of anti-virulent agents, bioactive formulations from different natural resources. She has experience in animal handling and polyclonal antibody development including various work in marine animal models. Last few years she has handled/handling core R&D projects as PI and Co-PI around 3.1 cr. So far, Dr Chatterjee has published 35 research papers in international peer reviewed scientific journals, and 5 nos of patents are filed. She also has 5 book chapters in international publishers and one in Indian publishers. She also has experience in research collaboration with many pioneer research institutes.

Publications: https://scholar.google.co.in/citations?user=_dxRqQ0AAAAJ&hl=en

I Faculty Profiles

Dr. Vijay Kumar Srivastava (Assistant Professor)

PhD in Structural Biology, CSIR- Central Drug Research Institute (CDRI), Lucknow, India.

Experience: Postdoctoral Research- 4 Years 8 Months, Teaching- 7 Years

Area of Expertise: Protein Chemistry and Protein Structure based drug design.

Email: vijaykumar.srivastava@nirmauni.ac.in, vijaytechno@gmail.com

Research Interests: Dr. Vijay Kumar Srivastava has completed his Ph.D. from Central Drug Research Institute, Lucknow affiliated with Jawaharlal Nehru University, New Delhi in Structural Biology. He has worked as a DST-SERB Young Scientist and Postdoctoral Fellow at the Indian Institute of Science Education and Research, Bhopal in the area of Bioinformatics and Structural biology. Dr. Vijay is a structural biologist with expertise in the field of macromolecular X-ray crystallography and interdisciplinary areas of protein chemistry, biochemistry, molecular biology, biophysics, and bioinformatics. He has joined the Institute of Science at Nirma University as an Assistant Professor, starting in Sep 2024. His research interest involves deciphering the structure-function of a biological molecule in a cell with a broader intent of understanding how a cell functions as a living unit, responds to external cues, communicates with other cells, and contributes to the virulence processes in pathogenic systems. We aim to identify lead molecules against the pathogen that will be validated, examined against its growth, and tested for drug trials and development. Lead molecules will be taken for preclinical and clinical trials in collaboration with clinicians and industries to propel testing and implementation of novel antimicrobials. Dr. Vijay has already completed two projects as a PI and a Co-PI and he has published 66 papers in SCI in area of infectious disease, eleven book chapters, and one book in Elsevier as an Editor and he is also the Editor of PLOS ONE, Cellular Microbiology, Journal of Tropical Medicine, and Canadian Journal of Infectious Diseases and Medical microbiology.

Publications: <https://scholar.google.co.in/citations?user=ft2BuHIAAAAJ&hl=en>

I Pillars of Strength

Mr. Ronak Barot

(Jr. Office Superintendent) Administration

Mr. Valji Desai

(Assistant Librarian) Library

Mr. Parthiban S. Mudaliyar

(PA cum Stenographer)

Mr. Sachin Prajapati

(Lab Supervisor) Laboratory

Mr. Rajendra Patel

(Store Keeper)

Ms. Mrugani Surati

(Placement Officer)

Course Work
The main mode of learning at the Institute includes classroom activity, laboratory work and assignments involving extensive use of library

Industry Exposure Industrial visits, training in industry, experts from industry deliver lectures and seminars

Exposure to trends and Developments Organizing seminars, symposiums etc on the topic of current interest

Co-curricular Activities Participate and present posters in technical competitions, seminars. Conferences throughout the country, preparing for

Communication Skills Development One of the regular features at the Institute is class seminars and magazine of the student bodies

Extracurricular Activities Participate in cultural events, sports and personality development

Social Responsibility Contribute to the society at large by participating in activities like blood donation camp, blood grouping in

Group Learning Students are encouraged to learn in groups and group projects are also a part of the academic life at the Institute

The Learning at Institute of Science








CONTACT DETAILS:-

The Admission Officer

Nirma University Institute of Science, S G Highway,
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Website URL:- www.science.nirmauni.ac.in

Office Timings:- Monday to Friday - 9.00 a.m. to 4.00 p.m.
Odd-Saturdays - 9.00 a.m. to 3.00 p.m.

