
ARIVU - SCIENCE CAREER LITERACY

Malayalam for Knowledge

The Complete *Science Career* Guide

70+ researched career pathways for +2 school students in Palakkad, Kerala. Beyond IIT-JEE and NEET. Real careers, real institutions, real entrance routes.

70+

CAREERS

6

CATEGORIES

150+

INSTITUTIONS

About *This Guide*

Most students in Palakkad know about engineering (IIT-JEE) and medicine (NEET). But India has over 300 science career pathways spanning research, technology, policy, communication, and emerging interdisciplinary fields. This guide documents 70+ of them — each with real Indian institutions, entrance exams, and salary ranges.

Every career listed here has been researched and verified. The institutions are real, the entrance exams are current, and the salary data reflects actual market ranges. Whether you love physics, biology, chemistry, mathematics, or environmental science, there is a career pathway waiting for you.

Use this guide alongside the Arivu website (arivu-palakkad.github.io) and the Career Matcher tool to find the pathway that best matches your interests, strengths, and goals.

How to Use This Guide

- **Browse by Category:** Careers are organized into five categories — Pure Research, Applied Science, Communication & Education, Policy & Governance, and Interdisciplinary & Emerging fields. Start with the category that interests you most.
- **Check the Institutions:** Each career lists real Indian institutions where you can study and work. Research these institutes online to understand their programs, admission requirements, and campus culture.
- **Note the Entrance Exams:** Many science careers require specific entrance exams (GATE, JEST, IIT-JEE, NET, DBT JRF, ICAR AICE). Plan your exam preparation timeline well in advance — most exams require 1-2 years of dedicated preparation.
- **Consider Salary Ranges:** The salary figures (in Lakhs per year) represent typical starting to mid-career ranges. Senior researchers, professors, and industry leaders can earn significantly more.
- **Explore Intersections:** Many exciting careers exist at the intersection of multiple fields. Computational Biology merges biology with computer science. Health Informatics connects medicine with data science. Do not limit yourself to one traditional discipline.

Pure Research

20 careers

These careers involve fundamental scientific investigation — asking new questions about how the universe, life, and matter work. Pure research drives breakthroughs that later find applications in technology, medicine, and industry. These roles are typically based at research institutes, universities, and national laboratories.

Astrophysics & Space Science

₹6–25L/yr

Research · Space

Study black holes, dark matter, galaxy formation, and the origins of the universe. India operates world-class observatories in radio (GMRT), optical (IAA), and X-ray (AstroSat). The field blends theoretical physics with cutting-edge observational astronomy, offering opportunities to work on international collaborations like LIGO and the Square Kilometre Array.

Where: TIFR · IIA Bangalore · IUCAA · NCRA **Exam:** JEST / GATE

Mathematics Research

₹6–22L/yr

Research · Pure Math

Pure mathematics research spans number theory, algebraic geometry, topology, and combinatorics. India has a rich mathematical tradition, and institutions like TIFR and ISI produce world-class mathematicians. Research careers in mathematics are ideal for students who love abstract problem-solving and logical rigor, with applications reaching into cryptography, computer science, and theoretical physics.

Where: TIFR · ISI · CMI · Kerala Maths tradition **Exam:** ISI Entrance / NBHM

Neuroscience Research

₹6–28L/yr

Research · Brain

Explore the brain and nervous system at molecular, cellular, and systems levels. India's neuroscience research is growing rapidly with NBRC (Manesar) and NIMHANS (Bangalore) leading cutting-edge work in neurodegenerative diseases, brain-computer interfaces, and cognitive neuroscience. The field bridges biology, psychology, and computational modeling.

Where: NBRC · NIMHANS · IISc · TIFR **Exam:** GATE / JEST / IISc PhD

Particle & High Energy Physics

₹7–32L/yr

Research · Physics

Investigate the fundamental building blocks of matter and the forces governing them. Indian physicists contribute to CERN experiments, study cosmic rays, and develop particle accelerator technology. The field demands strong mathematical skills and offers opportunities in both theoretical and experimental research at premier laboratories.

Where: TIFR · VECC · IISc · CERN India **Exam:** JEST / GATE

Marine Biology & Fisheries

₹5–22L/yr

Research · Marine

Study marine ecosystems, fisheries management, coral reefs, and aquatic biodiversity. With India's 7,500 km coastline, marine biology offers critical careers in food security, climate adaptation, and conservation. CMFRI in Kochi is Asia's largest marine research institute, leading work on sustainable fisheries and aquaculture.

Where: CMFRI · CIFE · NIO · Cochin Univ. of Sci & Tech **Exam:** GATE / ICAR AICE

Genetics & Genomics

₹7–35L/yr

Research · Genetics

Decode the language of DNA to understand heredity, evolution, and disease. India's genomics research is expanding rapidly with large-scale population studies and genomic medicine initiatives. Careers span from agricultural genetics to personalized medicine, CRISPR gene editing, and forensic DNA analysis.

Where: NIBMG Kalyani · CCMB Hyderabad · IGIB Delhi · DBT **Exam:** GATE / JEST / DBT JRF

Virology & Epidemiology

₹6–30L/yr

Research · Virology

Study viruses, disease outbreaks, and public health patterns. Post-COVID India has massively expanded virology research capacity. NIV Pune is India's premier virology institute, working on vaccine development, viral surveillance, and pandemic preparedness. This field is critical for global health security.

Where: NIV Pune · ICMR-NIE Chennai · NIMHANS · RGC B TVM **Exam:** GATE / ICMR JRF

Wildlife Biology & Conservation

₹4–18L/yr

Research · Wildlife

Study animal behaviour, habitat ecology, and biodiversity conservation. India is a megadiversity nation with tiger reserves, national parks, and unique ecosystems like the Western Ghats. Wildlife biologists work with forest departments, NGOs, and international conservation organizations on species recovery programs and human-wildlife conflict mitigation.

Where: WII Dehradun · SACON Coimbatore · ATREE · IISER **Exam:** WII Entrance / GATE

Quantum Science & Technology

₹8–40L/yr

Research · Quantum

Explore quantum mechanics at the frontiers of computation, communication, and sensing. India's National Quantum Mission (2023) has allocated significant funding for quantum computing, quantum cryptography, and quantum materials. This field represents the next technological revolution with applications in drug discovery, materials science, and secure communications.

Where: IISc · TIFR · RRI · QSTC · IITs **Exam:** JEST / GATE

Environmental Science

₹5–18L/yr

Research · Environment

Study the interactions between living organisms and their environment. Environmental science in India addresses critical challenges: air and water pollution, biodiversity loss, climate change impacts, and sustainable development. Research careers span ecology, pollution monitoring, environmental toxicology, and conservation biology with applications in policy and industry.

Where: CESS · IISER · Wildlife Institute · MoEFCC **Exam:** GATE / NET

Cognitive Science

₹6–28L/yr

Research · Brain

Study the mind, intelligence, and behaviour through an interdisciplinary lens combining psychology, neuroscience, linguistics, and computer science. India's cognitive science community is growing with new centres at IITs and universities. Research spans artificial intelligence modelling, language processing, decision-making, and consciousness studies.

Where: IIT-Kanpur · CBC Allahabad · IISc · JNU **Exam:** JEST / GATE / JNU Entrance

Ocean & Atmospheric Science

₹6–20L/yr

Research · Ocean

Study ocean dynamics, weather systems, monsoon patterns, and climate variability. INCOIS (Hyderabad) leads India's ocean forecasting and tsunami early warning systems. Atmospheric science careers are critical for India's agriculture-dependent economy, cyclone prediction, and climate change adaptation planning.

Where: INCOIS · IMD · IITM Pune · NCESS **Exam:** GATE / JEST / IITM

Pharmaceutical Research

₹7–35L/yr

Research · Pharma

Develop new drugs, formulations, and delivery systems to treat diseases. India is the world's largest producer of generic medicines, and pharmaceutical research is a cornerstone of the industry. Research spans molecular pharmacology, drug design, clinical trials, and pharmacovigilance. Career paths include academic research and industry R&D roles.

Where: CDRI · IICT · Sun Pharma · Dr. Reddy's R&D **Exam:** GATE / GPAT

Polar Science & Cryosphere

₹5–20L/yr

Research · Earth

Study Earth's polar regions, glaciers, ice sheets, and permafrost. India maintains research stations in Antarctica (Bharati and Maitri) and the Arctic. Polar scientists study climate change indicators, glaciology, sea-level rise, and polar ecosystems. This niche field offers unique opportunities for international collaboration and adventure.

Where: NCAOR Goa · SAC Ahmedabad · IISc **Exam:** NCAOR Selection

Paleontology & Earth History

₹5–22L/yr

Research · Earth

Study fossils and ancient life forms to reconstruct Earth's biological and geological history. India has rich fossil sites spanning the Permian, Triassic, and Cretaceous periods, and Indian paleontologists have contributed to major dinosaur discoveries. The field combines fieldwork, laboratory analysis, and evolutionary biology.

Where: Geological Survey of India · IIT · BSIP Lucknow **Exam:** GATE / NET

Astrobiology & Life Origins

₹6–28L/yr

Research · Space

Investigate the origins of life on Earth and the potential for life elsewhere in the universe. Astrobiology combines biology, chemistry, geology, and astronomy. India's space program (ISRO) has expanded its focus to include exoplanet research and astrobiological experiments, making this an emerging and exciting field.

Where: IISc · TIFR · ISRO · IIST **Exam:** JEST / GATE

Microbiology & Microbiome Science

₹6–30L/yr

Research · Biology

Study microorganisms and their roles in health, environment, and industry. The human microbiome is one of the most exciting frontiers in biology, with implications for digestion, immunity, mental health, and chronic disease. India's diverse ecosystems provide rich grounds for discovering novel microbial species with biotechnological applications.

Where: IISc · JNU · IMTech Chandigarh · DBT Institutes **Exam:** GATE / JEST / DBT JRF

Biophysics & Structural Biology

₹7–35L/yr

Research · Biology

Apply physics principles to understand biological systems at the molecular and cellular level. Structural biology uses X-ray crystallography and cryo-EM to determine protein structures, essential for drug design. India has world-class facilities at IISc and CCMB, and the field bridges physics, biology, and computational science.

Where: IISc · TIFR · IIT-B · CCMB **Exam:** JEST / GATE / DBT JRF

Immunology & Vaccine Science

₹7–38L/yr

Research · Biology

Study the immune system to develop vaccines, immunotherapies, and diagnostic tools. India's vaccine manufacturing capability (Serum Institute, Bharat Biotech) is world-leading, creating strong demand for immunology researchers. The field covers autoimmune diseases, cancer immunotherapy, and emerging pathogen response.

Where: IVI Delhi · NIV Pune · IISc · THSTI Faridabad **Exam:** GATE / JEST / DBT JRF

Science Education Research

₹5–20L/yr

Research · Education

Study how people learn science and develop effective teaching methods. India's science education research addresses the gap between curriculum and understanding, developing hands-on learning approaches, assessment tools, and teacher training programs. HBCSE Mumbai is a world leader in science education research and Olympiad training.

Where: HBCSE · RIE · NCERT · State Universities **Exam:** NET / PhD

SECTION B

Applied Science 39 careers

Applied science careers focus on using scientific knowledge to solve real-world problems. These roles span engineering, technology development, industrial research, and field applications. Applied scientists work across industries, government labs, and research institutions, turning discoveries into practical solutions.

Data Science & AI

₹8–45L/yr

Applied · Data & AI

Build intelligent systems that learn from data to solve real-world problems. Data science and AI are transforming every industry in India, from healthcare diagnostics to agricultural pricing. Career paths include machine learning engineering, natural language processing, computer vision, and AI ethics. India's tech ecosystem provides abundant opportunities in both startups and corporate R&D.

Where: IITs · IIITs · ISI · TCS Research · Microsoft R&D India **Exam:** GATE / JEST / Direct

Robotics & Automation

₹10–50L/yr

Applied · Robotics

Design, build, and program robots for industrial, medical, and exploration applications. India's manufacturing sector is rapidly automating, creating strong demand for robotics engineers. Research spans autonomous vehicles, surgical robots, industrial automation, and human-robot interaction. The 'Make in India' initiative has further boosted this sector.

Where: IIT · DRDO · TCS Research · Bosch India **Exam:** GATE / IIT-JEE

Biomedical Engineering

₹8–42L/yr

Applied · Medical Tech

Apply engineering principles to healthcare, developing medical devices, prosthetics, imaging systems, and diagnostic tools. India's biomedical engineering sector is growing with increasing healthcare investment. Careers span from designing affordable medical devices for rural India to developing cutting-edge surgical robotics and tissue engineering.

Where: IITs · VIT · CMC Vellore · AIIMS · CSIR Labs **Exam:** GATE / IIT-JEE

Nanotechnology & Nanoscience

₹6–28L/yr

Applied · Nano

Manipulate matter at the atomic and molecular scale to create new materials and devices with revolutionary properties. Nanotechnology applications in India include targeted drug delivery, water purification, energy storage, and electronics. ARCI Hyderabad and IISc Bangalore are leading nanotech research centres.

Where: IITs · ARCI · CSIR-NPL · IISc **Exam:** GATE / JEST

Aerospace Engineering

₹8–42L/yr

Applied · Space

Design aircraft, spacecraft, satellites, and missile systems. India's space programme (ISRO) and defence sector (DRDO, HAL) provide world-class career opportunities. The private space sector is booming with companies like Skyroot, Agnikul, and Pixxel. Kerala's own IIST in Thiruvananthapuram offers direct pathways to ISRO.

Where: IIST · DRDO · ISRO · HAL · Private Startups **Exam:** GATE / IIT-JEE / IIST

Renewable Energy Engineering

₹7–35L/yr

Applied · Energy

Develop solar, wind, hydrogen, and other clean energy technologies. India has committed to 500 GW of renewable energy capacity by 2030, creating massive career opportunities. The field spans solar cell design, wind turbine engineering, energy storage, grid integration, and energy policy analysis. TERI and NISE are leading institutions.

Where: IITs · MNRE Labs · NISE · TERI **Exam:** GATE / IIT-JEE

Materials Science

₹7–28L/yr

Applied · Materials

Design and develop new materials with tailored properties for industrial applications. Materials science underpins every technology from semiconductors to biomaterials. India's research spans nanomaterials, smart materials, corrosion science, and metallurgy. CSIR-NML Jamshedpur is India's premier metallurgy research centre.

Where: IISc · IIT · BARC · CSIR-NML **Exam:** GATE / JEST

Biotechnology & Genetic Engineering

₹4–18L/yr

Applied · Bio Tech

Use biological systems and organisms to develop products and technologies in healthcare, agriculture, and industry. India's biotech sector is one of the world's largest, with applications ranging from bio-pharmaceuticals to genetically modified crops. BIRAC (DBT) supports biotech entrepreneurship and innovation.

Where: IIT-B Biotech · DBT · ICGEB New Delhi · BIRAC **Exam:** GATE / JEST / DBT JRF

Statistics & Actuarial Science

₹6–32L/yr

Applied · Statistics

Apply mathematical and statistical methods to analyze data, assess risk, and drive decisions across finance, insurance, healthcare, and policy. India's statistical tradition is world-renowned with institutions like ISI. Actuarial science offers high-paying careers in insurance and risk management.

Where: ISI Kolkata/Delhi · IIT-Kanpur · ASI · CUSAT **Exam:** ISI Entrance / GATE

Geospatial & Remote Sensing

₹6–22L/yr

Applied · Space

Use satellite imagery and spatial analysis to monitor Earth's surface for agriculture, urbanization, disaster management, and environmental change. IIRS Dehradun and ISRO's NRSC lead India's remote sensing capabilities. The field combines physics, computer science, and geography with applications in smart cities and climate monitoring.

Where: IIRS Dehradun · ISRO · NRSC · Survey of India **Exam:** GATE / IIRS / JEST

Photonics & Optical Engineering

₹6–25L/yr

Applied · Physics

Work with light-based technologies including lasers, fibre optics, optical communications, and photonic devices. Photonics is foundational to telecommunications, medical imaging, and manufacturing. India's photonics research is growing with new centres at IITs and CSIR labs, supporting the country's digital infrastructure and defence needs.

Where: IITs · CEERI · CSIO · IISc **Exam:** GATE / JEST

Polymer Science & Engineering

₹6–28L/yr

Applied · Materials

Design and develop polymers and plastics for applications in packaging, automotive, healthcare, and electronics. India's polymer industry is vast, and research spans biodegradable plastics, high-performance composites, and conductive polymers. NCL Pune is a world leader in polymer chemistry and chemical engineering research.

Where: IIT · NCL Pune · CSIR Labs · IPFT **Exam:** GATE / JEST

Metallurgy & Materials Engineering

₹6–30L/yr

Applied · Materials

Study metals and alloys for applications in infrastructure, aerospace, defence, and manufacturing. India's steel and metals industry is among the world's largest. Metallurgical engineers work on developing lighter, stronger alloys, corrosion protection, and advanced manufacturing techniques for India's growing industrial base.

Where: IIT-BHU · ISM Dhanbad · NML Jamshedpur · DRDO **Exam:** GATE / IIT-JEE

Food Technology & Nutrition

₹5–25L/yr

Applied · Food

Develop packaged foods, fortification programs, and dietary guidelines. India's food processing industry is rapidly growing, creating demand for food technologists. CFTRI Mysore is Asia's largest food research institute. Careers span quality control, product development, food safety regulation, and nutritional science.

Where: CFTRI Mysore · IIFPT Thanjavur · FSSAI · Industry **Exam:** GATE / ICAR AICE

Dairy Technology

₹4–18L/yr

Applied · Agriculture

Apply science and engineering to milk production, processing, and quality management. India is the world's largest milk producer, and the dairy industry employs millions. Kerala's Milma is a model cooperative — dairy tech careers span quality control, product development, supply chain management, and rural dairy development.

Where: NDRI Karnal · Amul · Kerala Milma · State Dairies **Exam:** ICAR AICE / GATE

Plant Biotechnology & Breeding

₹6–28L/yr

Applied · Agriculture

Develop improved crop varieties using biotechnology, molecular breeding, and genomic tools. India's food security depends on agricultural innovation. Research spans drought-resistant varieties, biofortified crops, pest-resistant plants, and organic farming technologies. This field directly impacts India's 150+ million farmers.

Where: ICAR · IARI · State Agricultural Universities **Exam:** ICAR AICE / GATE

Meteorology & Weather Forecasting

₹5–22L/yr

Applied · Earth

Predict weather patterns, study climate systems, and issue forecasts for agriculture, aviation, and disaster management. IMD operates one of the world's largest weather observation networks. With increasing extreme weather events, meteorology careers are more critical than ever for India's economy and public safety.

Where: IMD · IITM Pune · INCOIS · IISc **Exam:** GATE / IITM

Hydrology & Water Resources

₹5–20L/yr

Applied · Earth

Study water distribution, movement, and quality across Earth's surface and underground. Water scarcity is one of India's most pressing challenges. Hydrologists work on groundwater assessment, watershed management, flood prediction, and water quality monitoring. Kerala's frequent floods make hydrology especially relevant for the state.

Where: NIH Roorkee · IIT-Roorkee · CGWB · State Depts **Exam:** GATE / IIT-JEE

Geology & Earth Science

₹5–22L/yr

Applied · Earth

Study Earth's structure, rocks, minerals, and natural resources. Geologists are essential for India's mining, oil exploration, and infrastructure sectors. India's geological diversity — from the Himalayas to the Deccan Traps — provides exceptional field research opportunities and career paths in resource exploration and geohazard assessment.

Where: GSI · IIT · ISM Dhanbad · ONGC **Exam:** GATE / IIT-JEE

Acoustics & Audio Engineering

₹6–28L/yr

Applied · Physics

Study sound and vibration for applications in noise control, architectural acoustics, audio technology, and underwater sonar. Acoustics engineers work on designing concert halls, reducing industrial noise pollution, developing hearing aids, and creating advanced audio systems for entertainment and communication.

Where: IIT · CSIR-NEERI · Acoustical Society · Industry **Exam:** GATE / IIT-JEE

Catalysis & Green Chemistry

₹7–30L/yr

Applied · Chemistry

Design chemical processes and catalysts that minimize waste and environmental impact. Green chemistry is essential for India's sustainable manufacturing goals. Research spans renewable feedstocks, solvent-free reactions, biodegradable polymers, and industrial process optimization to reduce the chemical industry's environmental footprint.

Where: IIT · NCL Pune · IICT Hyderabad · CSIR Labs **Exam:** GATE / JEST

VLSI Design & Microelectronics

₹10–60L/yr

Applied · Electronics

Design integrated circuits and microchips that power every electronic device. India's semiconductor mission aims to build domestic chip manufacturing capability, creating massive career opportunities. VLSI engineers work on chip architecture, verification, physical design, and embedded systems. The field is at the heart of India's digital transformation.

Where: IITs · IIITs · CDAC · NIELIT · Semiconductor Labs **Exam:** GATE / IIT-JEE

Environmental Engineering

₹6–28L/yr

Applied · Environment

Apply engineering solutions to environmental challenges including water treatment, air pollution control, solid waste management, and sustainable infrastructure. India's rapid urbanization makes environmental engineers critical for building smart, sustainable cities. Careers span consulting, government agencies, NGOs, and industrial environmental management.

Where: IITs · NEERI · CPCB · State Pollution Boards **Exam:** GATE / IIT-JEE

High Performance Computing & Supercomputing

₹9–45L/yr

Applied · CS

Build and operate supercomputers and parallel computing systems for scientific research, weather modelling, and national security. India's National Supercomputing Mission has deployed PARAM series supercomputers across the country. Careers in HPC span system architecture, parallel programming, performance optimization, and computational science.

Where: C-DAC · IISc · SERC · TIFR · IITs **Exam:** GATE / Direct

Electric Vehicle & Mobility Engineering

₹8–40L/yr

Applied · Energy

Design electric vehicles, battery systems, and charging infrastructure for India's clean mobility transition. India's EV market is one of the world's fastest-growing, supported by FAME-II and state-level incentives. Careers span battery chemistry, motor design, power electronics, autonomous driving systems, and EV policy analysis.

Where: IITs · ARAI Pune · Niche · Automotive Industry **Exam:** GATE / IIT-JEE

Surgical Robotics & MedTech

₹8–42L/yr

Applied · Medical Tech

Develop robotic surgical systems, AI-powered diagnostics, wearable health devices, and telemedicine platforms. India's MedTech sector is growing rapidly with startups and established companies innovating for India's diverse healthcare needs. The field combines mechanical engineering, electronics, AI, and clinical knowledge.

Where: IITs · AIIMS · CSIR · MedTech Startups **Exam:** GATE / IIT-JEE

Battery & Energy Storage Tech

₹5–20L/yr

Applied · Energy

Develop next-generation batteries, supercapacitors, and energy storage systems for electric vehicles, grid storage, and portable electronics. India's energy storage demand is surging with the EV revolution and renewable energy integration. Research spans lithium-ion alternatives, solid-state batteries, and recycling technologies.

Where: IITs · ARCI · CECRI · ISRO · Industry **Exam:** GATE / JEST

Industrial Biotechnology

₹4–18L/yr

Applied · Bio Tech

Apply biotechnology to industrial processes including biofuels, bioplastics, enzymes, and fermentation. India's industrial biotech sector produces bioethanol, industrial enzymes, and biodegradable materials. Careers span process engineering, strain development, quality control, and bio-manufacturing for India's growing bioeconomy.

Where: IITs · DBT Institutes · Biocon · Industrial Partners **Exam:** GATE / DBT JRF

Computational Biology

₹8–40L/yr

Applied · Biology + CS

Use computational tools to analyze biological data, model biological systems, and accelerate drug discovery. Computational biology sits at the intersection of biology, computer science, and statistics. India is building strong capabilities in bioinformatics, systems biology, and AI-driven drug discovery, with applications in genomics, epidemiology, and personalized medicine.

Where: IISc · NCBS · TIFR · DBT Institutes **Exam:** JEST / GATE / DBT JRF

Public Health & Epidemiology

₹6–28L/yr

Applied · Medicine

Study population health, disease patterns, and healthcare systems to improve public health outcomes. India faces unique public health challenges: infectious diseases, malnutrition, non-communicable diseases, and healthcare access inequity. Careers span epidemiological surveillance, health policy, program management, and community health research.

Where: IIPH · AIIMS · ICMR · State Health Depts **Exam:** GATE / AIIMS / ICMR JRF

Health Informatics & Medical AI

₹8–40L/yr

Applied · Data & Health

Apply data science and AI to healthcare challenges including disease diagnosis, drug discovery, patient monitoring, and hospital management. India's large patient data sets and AI talent pool make it a potential leader in medical AI. Careers span AI diagnostic tool development, electronic health records, telemedicine, and clinical decision support systems.

Where: IITs · IIITs · AIIMS · MedTech Companies **Exam:** GATE / IIT-JEE

Bioinformatics

₹7–35L/yr

Applied · Biology + CS

Develop algorithms and tools to analyze biological data including genomes, protein structures, and metabolic pathways. Bioinformatics is essential for modern biology research and drug discovery. India has strong bioinformatics groups at IISc, JNU, and IGIB, with careers spanning academia, pharma, and agricultural biotechnology.

Where: IISc · JNU · IGIB · IIIT-Delhi **Exam:** GATE / JEST / DBT JRF

Synthetic Biology

₹8–40L/yr

Applied · Biology

Design and construct new biological systems and organisms with novel functions. Synthetic biology is an emerging frontier that combines genetic engineering, computational biology, and systems thinking. Applications include engineered microbes for drug production, biosensors, bioremediation, and programmable cells for therapeutic purposes.

Where: IISc · IITs · ICGEB · JNU **Exam:** GATE / JEST / DBT JRF

Carbon Capture & Climate Engineering

₹4–18L/yr

Applied · Environment

Develop technologies to capture carbon dioxide from the atmosphere and industrial processes to combat climate change. Carbon capture, utilization, and storage (CCUS) is increasingly critical for India's energy transition. Research spans direct air capture, mineral carbonation, bioenergy with CCS, and industrial process integration.

Where: IITs · TERI · CSIR · International Labs **Exam:** GATE / IIT-JEE

Soil Science & Agricultural Chemistry

₹4–18L/yr

Applied · Agriculture

Study soil composition, fertility, and management for sustainable agriculture. Soil health is foundational to India's food security. Research spans soil microbiology, nutrient management, soil carbon sequestration, and remediation of contaminated soils. Kerala's laterite soils and Western Ghats ecosystems offer unique research contexts.

Where: ICAR · IARI · KAU · State Agricultural Universities **Exam:** ICAR AICE / GATE

Forest Science & Silviculture

₹4–18L/yr

Applied · Environment

Study forest ecosystems, tree physiology, and sustainable forest management. India's forests cover 21% of its land area and are critical for biodiversity, water security, and carbon sequestration. Forestry careers span forest conservation, wildlife management, agroforestry, and urban forestry, with roles in government, research, and conservation organizations.

Where: FRI Dehradun · ICFRE · State Forest Depts · IISc **Exam:** GATE / ICFRE / State Exam

Defence Science & Strategic Tech

₹8–40L/yr

Applied · Defence

Develop missiles, radars, UAVs, cyber weapons. DRDO operates 50+ labs across India. The 'Make in India' defence push has created 100,000+ jobs in defence R&D over the past 5 years. Careers span aeronautics, naval systems, electronics, and materials science, with opportunities to work on cutting-edge national security technologies.

Where: DRDO · ISRO · BEL · HAL · DAE **Exam:** DRDO SET / GATE

Nuclear Science & Engineering

₹8–35L/yr

Applied · Nuclear

Reactor design, radiation safety, isotope medicine. BARC's OCES program is India's elite nuclear training. India has 22 operating reactors with 10 more under construction — strong job pipeline. Nuclear scientists work on reactor physics, fuel cycle technology, radiation applications in medicine and agriculture, and nuclear waste management.

Where: BARC · IGCAR Kalpakkam · HBNI · IIT-B **Exam:** BARC OCES / GATE

Agricultural Science & Agritech

₹6–30L/yr

Research · Agriculture

Improve crop yields, develop sustainable farming practices, and advance agricultural technology. India's agritech sector is booming with startups working on precision farming, drone-based monitoring, AI-driven crop advisory, and supply chain optimization. Kerala's spice research and horticulture offer specialized career paths.

Where: ICAR · IARI · State Agricultural Universities **Exam:** ICAR AICE / GATE

SECTION C

Communication & Education

7 careers

Science communication and education careers bridge the gap between researchers and the public. These roles are essential for building a scientifically literate society, inspiring the next generation, and ensuring that research reaches the communities it serves.

Science Journalism

₹4–20L/yr

Communication · Media

Report on scientific discoveries, research breakthroughs, and their societal impact for media outlets, magazines, and digital platforms. Science journalism in India is growing with dedicated science sections in major publications. This career bridges science and society, making complex research accessible to the public through storytelling and critical analysis.

Where: The Wire Science · IndiaScienceWire · Scroll **Exam:** Mass Comm / Science Degree

Science Education & Pedagogy

₹5–18L/yr

Communication · Education

Teach and inspire the next generation of scientists. India's education system needs passionate science educators who can make subjects engaging and relevant. Careers span school teaching, curriculum design, science communicator roles, museum education, and educational technology development. HBCSE Mumbai leads science education innovation.

Where: RIE · HBCSE · State Universities · NCERT **Exam:** BEd / NET / PhD

Science Museums & Communicators

₹4–15L/yr

Communication · Outreach

Create engaging science exhibits, planetarium shows, and interactive learning experiences for the public. India's network of science museums and planetariums (NCSM network of 25+ centres) plays a vital role in science popularization. Careers span exhibit design, science shows, educational program development, and community outreach.

Where: NCSM · Science Centres · Planetariums · NGOs **Exam:** Science Degree / Museum Studies

Science Illustration & Visualization

₹4–20L/yr

Communication · Visual

Create visual representations of scientific concepts, organisms, and processes for publications, textbooks, and research papers. Scientific illustration combines art skills with scientific knowledge. India's growing research output creates demand for skilled illustrators who can make complex biological, geological, and astronomical concepts visually accessible.

Where: IISc · Media Houses · Research Institutes · Freelance **Exam:** Art + Science Degree

Science Documentary & Filmmaking

₹5–30L/yr

Communication · Media

Create films and videos that explain science, document research, and tell stories of discovery. India's science documentary scene is growing with digital platforms enabling independent creators. Careers span documentary filmmaking, science YouTube channels, educational video production, and science content creation for media companies.

Where: PSBT · DD Science · Studios · YouTube Creators **Exam:** Film / Mass Comm / Science

Science Translation & Localization

₹4–22L/yr

Communication · Language

Translate scientific texts, educational materials, and research between languages. India's linguistic diversity creates huge demand for science translation into regional languages including Malayalam, Tamil, Hindi, and others. This career is essential for making science accessible to students and communities across India.

Where: SNC · Academic Publishers · Media · NGOs **Exam:** Language + Science Degree

Science Policy Communication

₹6–28L/yr

Communication · Policy

Bridge the gap between scientific research and policy-making by communicating scientific evidence to policymakers, media, and the public. This emerging field combines scientific understanding with communication skills. Careers span science policy analysis, government science advisory roles, and evidence-based advocacy for research funding and science-based regulation.

Where: DST · CSIR · Media · Think Tanks **Exam:** Science + Comm / Policy

SECTION D

Policy & Governance 6 careers

Science policy and governance careers shape the rules, funding, and frameworks that guide scientific research and its application to society. These roles are critical for ensuring that science serves the public interest and that India's research ecosystem remains strong and ethical.

Science Policy

₹8–35L/yr

Policy · Governance

Shape national science policy, research funding priorities, and innovation ecosystems. India's science policy landscape is evolving with initiatives like the National Education Policy 2020 and the National Research Foundation. Science policymakers work on research funding allocation, STEM education reform, innovation clusters, and international science collaborations.

Where: DST · NITI Aayog · CSIR HQ · PMO **Exam:** UPSC / PhD / Policy Degree

Technology Law & IP

₹12–60L/yr

Policy · Law

Navigate intellectual property rights, technology regulation, and patent law in the scientific domain. India's growing innovation economy needs legal professionals who understand science. Careers span patent prosecution, technology licensing, biopiracy prevention, data privacy law, and regulatory compliance for pharmaceutical and biotech companies.

Where: Bar Council · NLSIU · Patent Office India **Exam:** Law + Science / CLAT

Climate Policy & Sustainability

₹7–30L/yr

Policy · Climate

Develop and implement policies addressing climate change, carbon emissions, and sustainable development. India is one of the world's most climate-vulnerable nations, and climate policy is critical for its future. Careers span climate risk assessment, international climate negotiations, carbon market regulation, and sustainability strategy for corporations and governments.

Where: TERI · WRI India · CPCB · MoEFCC **Exam:** UPSC / TERI / PhD

Environmental Law

₹7–40L/yr

Policy · Law

Practice law focused on environmental protection, conservation, and natural resource management. India's environmental jurisprudence is among the world's most active, with the National Green Tribunal adjudicating thousands of cases. Careers span environmental litigation, policy advocacy, compliance consulting, and biodiversity law.

Where: NGT · Supreme Court · State High Courts · NGOs **Exam:** Law Degree / CLAT / NET

Bioethics & Science Governance

₹6–30L/yr

Policy · Ethics

Address the ethical dimensions of scientific research including clinical trials, genetic modification, AI ethics, and research integrity. As India's research capacity grows, bioethics professionals are needed to ensure responsible innovation. Careers span institutional ethics committees, regulatory bodies, science governance, and international bioethics organizations.

Where: ICMR · DBT · Universities · WHO India **Exam:** PhD / Law / Bioethics

Space Policy & Astropolitics

₹7–35L/yr

Policy · Space

Shape the governance of outer space, satellite regulation, and international space cooperation. India's growing space capabilities (ISRO, private space startups) create demand for space policy professionals. Careers span satellite regulation, space law, international space treaties, space sustainability, and strategic space policy analysis.

Where: ISRO · IDSA · Think Tanks · UN COPUOS **Exam:** IR / Policy / Space Science

Interdisciplinary & Emerging 6 careers

These careers exist at the intersection of multiple scientific disciplines or represent emerging fields that did not exist a decade ago. They offer some of the most innovative and rapidly growing opportunities in India's expanding science and technology landscape.

Sports Science & Biomechanics

₹5–22L/yr

Applied · Sports

Apply scientific principles to improve athletic performance, prevent injuries, and enhance sports equipment. India's sports science sector is growing with increased investment in athletics and the Olympic program. Research spans exercise physiology, biomechanics, sports nutrition, and performance analytics, with applications for India's aspiring athletes.

Where: SAI · NSNIS Patiala · IITs · Sports Universities **Exam:** GATE / Sports Science

Forensic Psychology

₹5–25L/yr

Applied · Psychology

Apply psychological science to criminal investigation, legal proceedings, and correctional systems. Forensic psychologists work on criminal profiling, witness reliability assessment, juvenile justice, and victim support. India's criminal justice system increasingly recognizes the value of forensic psychology in investigations and legal proceedings.

Where: NIMHANS · DFSC · CBI · State Police Academies **Exam:** Psychology / Criminology

Geoinformatics & Cartography

₹6–25L/yr

Applied · GIS

Use Geographic Information Systems (GIS), satellite data, and spatial analysis to map, model, and manage geographic information. India's geospatial economy is growing rapidly with applications in urban planning, agriculture, disaster management, and infrastructure development. The recent liberalization of India's geospatial data policy has further expanded opportunities.

Where: IIT-Roorkee · IIRS · NRSC · State GIS Depts **Exam:** GATE / IIRS / JEST

Cryptology & Information Security

₹10–55L/yr

Applied · CS + Math

Develop encryption algorithms, security protocols, and cyber defence systems to protect information and communications. India's digital economy and national security depend on strong cryptology capabilities. Careers span academic cryptography research, cybersecurity analysis for government and industry, secure system design, and cyber forensics.

Where: ISI · CDAC · DRDO · IITs · CERT-In **Exam:** GATE / ISI Entrance

Heritage Science & Conservation

₹5–20L/yr

Applied · Heritage

Apply scientific methods to preserve cultural heritage including monuments, artifacts, paintings, and manuscripts. India's vast cultural heritage — from temples to manuscripts — needs scientific conservation. Heritage scientists work on material analysis, preservation techniques, climate-controlled storage, and digital preservation of cultural artifacts.

Where: NRLC Lucknow · ASI · INTACH · IITs **Exam:** Conservation Science / Chemistry

Toxicology & Pharmacology

₹7–32L/yr

Applied · Medical

Study the effects of chemicals, drugs, and environmental agents on living organisms. Toxicology is essential for drug safety evaluation, environmental health, and food safety regulation. India's pharmaceutical industry and growing regulatory framework create demand for toxicologists in research, regulatory affairs, and safety assessment.

Where: IIT-B · CDRI · IICT · Drug Regulators **Exam:** GATE / GPAT / PhD