

Pure Sciences Career Guide

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For students wishing to pursue Pure Sciences after 12th in INDIA

Book contains **Description of Course**, **Professions** and their Definitions, Qualities Required in candidates, Available Degrees in India, Career Prospects and their explanation, Specializations and their Definitions, Entrance Exam details with dates along with TOP Universities and their Rankings

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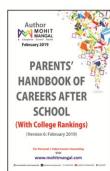
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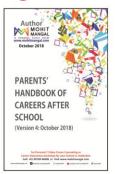
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2019 **Entrance Exams** across 16 Education Verticals



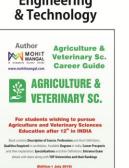
All Graduate **Degrees** across 20 Different education Verticals as per UGC with College Rankings



All Graduate **Degrees** across 20 Education Verticals



Engineering



Agriculture & Veterinary Sc.



Hotel Management



Design and **Fine Arts**



Architecture & Planning



Commerce & Finance



Liberal **Studies**



Performing



Pure Sciences



Arts/Humanities & Social Sciences



Mass Communication



Sports



Medicine and Surgery



Law



Economics



Defence **Forces**



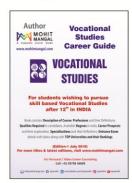
Rehabilitation & Paramedical Sc.



Business Management



Computer **Applications**



Vocational **Studies**







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ALL ABOUT PURE SCIENCES EDUCATION IN INDIA

Description of Profession: (What does one do in this?)

Pure Science involves science that derives theories and predictions. Pure Science can also be termed as natural Science, basic science or fundamental science. Pure science deals with the study of natural phenomena through observation, experimentation and use of scientific methods.

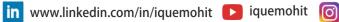
Pure science is often experimented in a laboratory. The main objective of pure science is to increase information of a particular field of study and develop scientific theories. Physics, Chemistry, biology and Mathematics etc are some of the major streams pursued in Pure Sciences.

Studying pure sciences requires curiosity in the different phenomena that occur in nature, creating theories and hypotheses about them, and finally testing and validating them through experimentation and logic.

Different science subjects address different aspects of natural phenomena. For example Physics deals with the study of properties of matter and its constituents in the universe, as they relate to motions, force and energy. Chemistry concerns itself with the reactions of the constituents of matter to create new forms of matter. And Biology is the study of life forms including their structure, function, growth, evolution, distribution, and classification.











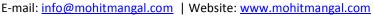






Professions available to candidates after completing Pure Sciences

- 1. **Acarologist:** A specialist in the study of mites and ticks.
- 2. Aerobiologist: A branch of biology that studies organic particles, such as bacteria, fungal spores, very small insects, pollen grains and viruses, which are passively transported by the air.
- 3. **Algologist:** An expert in the study of algae.
- **Arachnologist:** An expert in the study of spiders and other arachnids. 4.
- 5. **Archaeozoologist:** An expert in the study of faunal remains.
- 6. **Astacologist:** An expert who investigates and analyses crayfish.
- **7. Anthropologist:** Anthropologists are scientists who study the development and behaviors of human beings throughout the world, present and past, to help better understand humanity as a whole. They examine biological, archaeological, linguistic or sociocultural traditions, depending on their area of expertise.
- 8. Bacteriologist: An expert in the study of various kinds of bacteria, which are constantly changing and evolving. They typically do their research in a laboratory, mostly for government or pharmaceutical agencies.
- **Batologist:** A botanist involved in the study of brambles(Wild bushes) 9.
- 10. Biologist: A scientist who studies life, specifically organisms and their relationship to their environment.
- 11. Biometeorologist: An expert who studies the effects of natural or artificial atmospheric conditions, as temperature and humidity, on living organisms.
- **12. Biotechnologist:** An expert who develops products from living systems. Biotechnology commonly refers to genetically derived materials, but can also refer to developments based in microbiology, molecular biology and cell biology.
- 13. Bryologist: A botanist that studies bryophytes, the nonvascular complex plants such as mosses and liverworts.











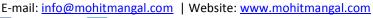








- 14. Carcinologist: A scientist who studies crustaceans or is otherwise involved in carcinology (the science of crustaceans). Crustaceans form a large, diverse arthropod taxon which includes such familiar animals as crabs, lobsters, crayfish, shrimps, prawns, krill, woodlice, and barnacles.
- 15. Chorologist: An expert who studies causal relations between geographical phenomena occurring within a particular region. The study of the spatial distribution of organisms.
- 16. Biological Scientist: Biological scientists study living organisms and their relationship to the environment. Most biological scientists specialize in one area of biology, such as zoology (the study of animals) or microbiology (the study of microscopic organisms).
- 17. Cryptozoologist: An expert who studies about the animals that have been seen but not proven to exist.
- **18.** Chemist: A scientist trained in the study of chemistry. Chemists study the composition of matter and its properties.
- **19. Dendrochronologist:** An expert who deals with the study of the annual rings of trees in determining the dates and chronological order of past events.
- 20. Dendrologist: An expert who studies the bark, twigs, and True False leaves of a tree.
- 21. Chronobiologist: An expert who studies about how our body's natural cycles—mental, physical and emotional—are affected by solar and lunar rhythms.
- 22. Cryobiologist: An expert who studies the effects of low temperatures on living tissues or organs or organisms.
- 23. Cytologist: An expert who prepares microscopic slides of human cells, examining them for abnormalities.
- 24. Cytotechnologist: Laboratory professionals who study cells and cellular anomalies.
- **25. Ecologist:** An expert who studies the interactions among organisms and their environment.











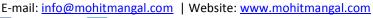








- **26. Ecotoxicologist:** An expert who studies about the effects of toxic chemicals on biological organisms, especially at the population, community, ecosystem, and biosphere levels.
- 27. Dietitian: Clinical dietitians and nutritionists provide medical nutrition therapy. They create nutritional programs based on the health needs of patients or residents and counsel patients on how to lead a healthier lifestyle.
- 28. Environmental Scientist: Environmental Scientists use their knowledge of earth's systems to protect the environment and human health. They do this by cleaning up contaminated areas, making policy recommendations, or working with industry to reduce pollution and waste.
- 29. Electrobiologist: An expert who studies about the production and use of electricity by biological organisms.
- **30.** Embryologist: An expert responsible for retrieving eggs, assisting with in vitro fertilization and running tests on eggs.
- **31.** Flavorist: A flavorist, also known as flavor chemist, is someone who uses chemistry to engineer artificial and natural flavors.
- 32. Gemmologist: one who deals with the science of natural and artificial gemstone materials.
- 33. Geochronologist: An expert who studies the age of rocks, fossils, and sediments using signatures inherent in the rocks themselves.
- **34. Geologist:** A scientist who studies the solid and liquid matter that constitutes the Earth as well as the processes that shape it.
- **35.** Geomorphologist: An expert who studies how the earth's surface is formed and changed by rivers, mountains, oceans, air and ice. The role involves a large amount of fieldwork and research.
- **36.** Gerontologist: An expert who studies the social, cultural, psychological, cognitive, and biological aspects of ageing.
- 37. Glaciologist: one who studies about snow and ice and their physical properties.



















- 38. Enologist: In the context of wine and wine making, an Enologist or Oenologist is a person who studies and is an expert in the science of wine and wine making.
- **39. Helminthologist:** An expert in the study of parasitic worms.
- 40. Enzymologist: A person who is trained in or engaged in enzymology (the branch of biochemistry concerned with enzymes).
- **41. Histologist:** A professional who studies the microscopic structure of tissue.
- 42. Epidemiologist: One who studies and analises the distribution and determinants of health and disease conditions in defined populations.
- 43. Hydrobiologist: An expert who studies about the science of life and life processes in water.
- 44. Hydrogeologist: An expert who studies the distribution, flow and quality of water underground (as opposed to hydrologists who are primarily concerned with surface water).
- 45. Hydrologist: An expert who collects surface water and soil samples and measures their properties.
- **46.** Ichthyologist: An expert who scientifically studies about different aspects of various fish species, including history, behavior, growth patterns, and their place in the ecosystems.
- **47. Insectologist:** A scientist who studies insects.
- 48. Lepidopterologist: An expert who's concerned with the scientific study of moths and the three superfamilies of butterflies. Someone that studies in this field is a lepidopterist or, archaically, an aurelian.
- 49. Lichenologist: A Specialist who studies about the lichens, symbiotic organisms made up of an intimate symbiotic association of a microscopic alga (or a cyanobacterium) with a filamentous fungus.
- 50. Limacologist: An expert who specialises in the study of slugs (a toughskinned terrestrial mollusc which typically lacks a shell and secretes a film of mucus for protection).
- 51. Limnologist: An expert who studies about the inland waters lakes (both freshwater and saline), reservoirs, rivers, streams, wetlands,

















groundwater - as ecological systems interacting with their drainage basins and the atmosphere.

- **52. Lithologist:** An expert in the study of rocks.
- 53. Malacologist: An expert who deals with the study of the Mollusca (mollusks or molluscs), the second-largest phylum of animals in terms of described species after the arthropods.
- **54.** Mammalogist: One who studies about mammals a class of vertebrates with characteristics such as homeothermic metabolism, fur, four-chambered hearts, and complex nervous systems.
- **55. Mathematician:** An expert who uses an extensive knowledge of mathematics in his or her work, typically to solve mathematical problems. Mathematics is concerned with numbers, data, quantity, structure, space, models, and change.
- **56.** Microclimatologist: An expert who studies about microclimates or climates of limited areas, as houses or communities.
- **57.** Micrometeorologist: An expert who deals with small-scale weather systems ranging up to several kilometers in diameter and confined to the lower troposphere.
- 58. Mineralogist: An expert who studies about minerals. Minerals are solid, naturally occurring inorganic substance.
- **59. Myrmecologist:** An expert who scientifically studies about ants.
- **60. Hypnologist:** An expert who scientifically studies about sleep and hypnotic phenomena.
- **61.** Naval Officer: Naval officers work in a specific career field within the Navy, such as aviation, healthcare, technology, engineering, law, safety services, or education.
- **62. Nematologist:** A nematologist specifically studies nematodes and their interaction with plants. Nematodes are microscopic roundworms that can transmit diseases and/or attack soil, water and insects.
- **63.** Microbiologist: A scientist who studies microscopic life forms and processes. This includes study of the growth, interactions and characteristics of

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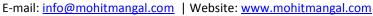








- microscopic organisms such as bacteria, algae, fungi, and some types of parasites and their vectors.
- **64.** Micrologist: A specialist in micrology. Micrology is the study of trivialities and minutiae. That part of science that deals with microscopic objects, or depends on microscopic observation.
- 65. Micropalaeontologist: A specialist who studies microfossils, or fossils that require the use of A microscope to see the organism, its morphology and its characteristic details.
- **66.** Morphologist: A specialist dealing with the study of the form and structure of organisms and their specific structural features.
- 67. Mycologist: An expert in the study of fungi, including their genetic and biochemical properties, their taxonomy and their use to humans as a source for tinder, medicine, food, and entheogens, as well as their dangers, such as toxicity or infection.
- **68.** Nutritionists: Professionals advising people on what to eat in order to lead a healthy lifestyle or achieve a specific health-related goal. They work in many settings, including hospitals, cafeterias, nursing homes, and schools. Some are self-employed with their own practice.
- **69. Odonatologist:** An expert who studies or is expert in insects that belong to the zoological group Odonata.
- **70. Ophiologist:** An expert in the study snakes.
- **71. Orchidologist:** A specialist in the study of orchids.
- **72. Ornithologist:** An expert in the study of birds.
- **73. Orthopterologist:** An expert who scientifically studies grasshoppers.
- **74.** Palaebiologist: An expert in the study of fossil animals and plants.
- **75.** Palaeoanthropologist: An expert in the study of fossil fish.
- **76.** Palaeoecologist: A scientist who studies fossils.
- 77. Palaeolimnologist: An expert in the study of ancient lake ecologies
- **78.** Palaeontologist: An expert who scientifically studies fossils and the evolution of life on Earth.



















- **79.** Palaeopedologist: An expert who scientifically studies ancient soil.
- 80. Paleoanthropologist: An expert who scientifically studies the origins and development of early humans.
- **81.** Palynologist: Palynology is the "study of dust" or "particles that are strewn". A classic palynologist analyses particulate samples collected from the air, from water, or from deposits including sediments of any age.
- 82. Parasitologist: A specialist dealing with the study of parasites and parasitism especially among animals.
- 83. Nosologist: A specialist in nosology. Nosology is a branch of medicine that deals with classification of disease.
- 84. Pedologist: A scientist who studies origins, composition and distribution of soils and the materials from which soils are formed.
- 85. Pestologist: An expert who analyses and researches pests and how to get rid of them.
- 86. Petrologist: An expert who scientifically studies about rocks, including petrography and petrogenesis.
- 87. Phenologist: An expert in the study of periodic plant and animal life cycle events and how these are influenced by seasonal and interannual variations in climate, as well as habitat factors (such as elevation).
- **88. Olfactologist:** A medical specialist in the sense of smell.
- 89. Photobiologist: An expert in the scientific study of the interactions of light (technically, non-ionizing radiation) and living organisms. The field includes photophysics, photochemistry, photosynthesis, photomorphogenesis, visual processing, circadian rhythms, photomovement, bioluminescence, and ultraviolet radiation effects
- 90. Photogeologist: An expert concerned with the identification and study of geological features through the study of aerial or orbital photographs.
- **91.** Physiologist: A biologist specializing in the biological study of the functions and processes of living organisms and their parts.
- 92. Phytologist: A biologist specializing in the study of plants. Also known as a Botanist or Plant Scientist.

















- 93. Phytopathologist: An expert who scientifically studies plant diseases and their causes, processes, and effects.
- **94.** Organologist: A specialist who studies the structure and function of organs.
- **95. Protistologist:** An expert in the study of numerous eukaryotic organisms that are not fungi, plants, or animals and are chiefly unicellular or colonial. Protists that are multicellular do not have cells differentiated into tissues. The protists include the protozoans, certain algae, oomycetes, and slime molds.
- 96. Protozoologist: A zoologist who studies protozoans. Also known as Animal scientist or a Zoologist - a specialist in the branch of biology dealing with animals.
- **97.** Osteologist: One who scientifically studies bones.
- 98. Pteridologist: An expert in the study of ferns (a flowerless plant which has feathery or leafy fronds and reproduces by spores released from the undersides of the fronds) and other pteridophytes.
- 99. Research Assistant: Research assistant is expected to contribute in many ways to the research project. They conduct literature reviews. Collect and analyze data. Prepare materials for submission to granting agencies and foundations.
- **100.** Palaeanthropologist: An expert in the study of the origins and predecessors of the present human species, using fossils and other remains.
- 101. Saprobiologist: An expert who studies decaying organic matter or environments.
- **102. Scientist:** A scientist is a person engaging in a systematic activity to acquire knowledge that describes and predicts the natural world. In a more restricted sense, a scientist may refer to an individual who uses the scientific method.
- 103. Sedimentologist: An expert in the study of modern sediments such as sand, silt, and clay, and the processes that result in their formation, transport, deposition and digenesis.
- **104. Seismologist:** An expert in the study of earthquakes and the propagation of elastic waves through the Earth or through other planet-like bodies.

















- **105.** Palaeopathologist: An expert who scientifically studies ancient diseases.
- 106. Pantheologist: A scientist who studies the causes and effects of diseases, especially one who examines laboratory samples of body tissue for diagnostic or forensic purposes.
- 107. Physiopathologist: A pathologist whose speciality is physiopathology. Pathophysiology or physiopathology is a convergence of pathology with physiology. Pathology is the medical discipline that describes conditions typically observed during a disease state, whereas physiology is the biological discipline that describes processes or mechanisms operating within An organism.
- **108. Primatologist:** An expert in the study of nonhuman primates. (Primates are characterized by large brains relative to other mammals, as well as an increased reliance on stereoscopic vision at the expense of smell, the dominant sensory system in most mammals. These features are more developed in monkeys and apes and noticeably less so in lorises and lemurs.)
- **109. Serologist:** Forensic serologists assist in criminal investigations by analyzing blood, urine, saliva, semen and other bodily fluids found at crime scenes. Their work can identify possible suspects, determine cause of death and help detectives unravel the sequence of events surrounding a crime.
- 110. Somatologist: An expert in the study or science of the human body as a branch of anthropology. This also includes the study of material substances, as in physics, chemistry, biology, botany which are under the general heading of physicalism.
- **111. Spelaeologist:** An expert in the scientific study of caves.
- **112. Spongologist:** An expert in the scientific studies of sponges.
- **113. Statistician:** Statisticians work with formulas and data to help solve problems in industry, academia, and government. Mathematicians and statisticians analyze data and apply mathematical and statistical techniques to help solve real-world problems in business, engineering, healthcare, or other fields.
- 114. Thanatologist: An expert in the scientific study of death. It investigates the mechanisms and forensic aspects of death, such as bodily changes that

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- accompany death and the post-mortem period, as well as wider psychological and social aspects related to death.
- **115.** Toxicologist: An expert in toxicology. Toxicology is A discipline, overlapping with biology, chemistry, pharmacology, and medicine, that involves the study of the adverse effects of chemical substances on living organisms and the practice of diagnosing and treating exposures to toxins and toxicants.
- 116. Virologist: An expert from clinical microbiology service specializing in the identification and characterization of viruses that causes infection such as rubella, herpes, hepatitis and HIV.
- 117. Zoophytologist: An expert in the study of zoophyte. Zoophytes are plant-like animal, especially a coral, sea anemone, sponge, or sea lily.
- 118. Zymologist: An expert in the study of the science dealing with fermentation and the action of enzymes











Qualities required in a candidate who wishes to pursue Pure Sciences

- Very High on Academic Orientation
- Contain High Scientific Aptitude
- Should be good with Logic and Analysis
- Ability to work in a Team
- Curiosity in researching about new things
- Ability to spend long hours with books or computers
- You should be good with Research and Problem Solving Skills









Degrees Available In Pure Sciences

Degree Nomenclature	Level	Duration	Eligibility
B.ScBachelor of Science	Bachelor Degree after 12th	3/4 Year	10+2 PCM/B
B.Sc.(Hons)-Bachelor of Science (Honors)	Bachelor Degree after 12th	3/4 Year	10+2 PCM/B
B.Sc. B.EdBachelor of Science, Bachelor of Education	Dual Degree after 12th	5 Year	10+2 PCM/B
B.StatBachelor of Statistics	Bachelor Degree after 12th	4 Year	10+2 with Stats/Maths
Integrated M.ScIntegrated Master of Science	Integrated Bachelor and Master	5 Year	10+2 PCM/B
B.Sc.M.ScBachelor of Science, Master of Science	Integrated Bachelor and Master	5/6 Year	10+2 PCM/B
M.ScMaster of Science	Master Degree after Graduation	2 Year	Respective Bachelor Degree
M.Sc. B.EdMaster of Science, Bachelor of Education	Dual Degree after Graduation	3 Year	Respective Bachelor Degree
M.StatMaster of Statistics	Master Degree after Graduation	2 Year	Respective Bachelor Degree
M.PhilMaster of Philosophy	Post Master Course	1.5 Year	Respective Master
Ph.DDoctor of Philosophy	Doctoral Course	2+ Year	Respective Master Degree
D.ScDoctor of Science	Post Doctoral Course	2+ Year	Respective PhD
B.ScBachelor of Science	Bachelor Degree after 12th	3/4 Year	10+2 PCM/B
B.Sc.(Hons)-Bachelor of Science (Honors)	Bachelor Degree after 12th	3/4 Year	10+2 PCM/B

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Career Prospects after Bachelor of Engineering/Technology

Higher Studies in Respective field: After graduation, the next step is getting a masters degree like M.Sc., MS, MCA etc. And after that if one is still enthusiastic, then they can go for a Ph.D.

Public Sector Undertaking: Work at Government Organizations like Hospitals, Clinics, Health Industry, Education Sector etc.

Indian Civil Services: The Indian Administrative Service (IAS), Indian Foreign Service (IFS), Indian Police Service (IPS) is the top ranking jobs. Other services, includes Finance, Post and Telegraph, Revenue, Secretariat etc.

Merchant Navy: You can join the merchant navy from age 16 onwards as an officer cadet or marine apprentice and train as a deck rating. You will at least require four GCSEs (grades A-C), or equivalent qualifications. These should include English, Mathematics and Physics (or combined science).

Indian Armed Forces: A graduate can join through the Combined Defense Services examination as a regular/short service commissioned officer. Training for regular commissioned officers is carried out at Indian Military Academy, Dehradun, known as the cradle of Military leadership. Those desirous of joining the Short Service Commission get trained at Officer's Training Academy at Chennai and serve for a period of five years. On completion of this term he can either resign or opt for an extension for five years or a permanent commission.

Many reputed government exams like IBPS, SBI and other bank **Banking Job:** exams emphasize on the knowledge of banking and business. You can work with any Private or Public bank after following the demanded procedure through the organization.

Defense Research Organizations: developing defense Get engaged in technologies covering various fields, like aeronautics, armaments, electronics, land

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combat engineering, life sciences, materials, missiles, and naval systems for Defense Research Organizations.

Work with Central Research Organizations **Central Research Organizations:** like Central Research Institute for Dry land Agriculture, Central Institute for Cotton Research, Central Glass and Ceramic Research Institute, Central Soil Salinity Research Institute, etc.

State Research Organizations: Work with State Research Organizations like Indian Institute of Science Education and Research, Institute of Microbial Technology, Naval Physical and Oceanographic Laboratory, Aryabhatta Research Institute of Observational Sciences, etc.

Teaching: Get into teaching and academics with your choice of subject.





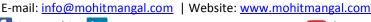






Specializations

- 1. Anthropology: Anthropology is the biological and social study of humans and human behaviour and societies with respect to its history and present day. It involves the study of aspects like origin of humans, its genetic makeup and evolution, physiology, as well as the social aspects like linguistics, culture, politics, etc.
- 2. Agriculture: Agricultural Science is a multidisciplinary field that comprises of a variety of scientific, technical & business subjects. It promotes the efficient production of quality food in the agricultural-food industry & on the farm linked to the farming.
- 3. Animation/Multimedia: The course imparts knowledge and the right skills in multimedia and animation disciplines that leads to a successful career in the designing and animation field.
- 4. Applied Physical Science: A combination of four scientific areas: astronomy, physics, chemistry, and the Earth sciences, Physical science is the systematic study of the inorganic world, as distinct from the study of the organic world, which is the province of biological science.
- **5. Aviation:** Aviation, in a literal sense, means operating or merely flying of an aircraft. An aviation degree counts as an initiative to provide willing candidates to empower education regarding departments in the airlines as well as those of airports.
- 6. Biochemistry: The combined study of Biology and Chemistry on cellular level that focuses on studying the chemical reactions required for life to exist and function. It is the laboratory based discipline of science that uses chemical knowledge and techniques to solve biological problems.
- 7. Bioinformatics: Bioinformatics is the application of information technology to the study of living things, usually at the molecular level. Bioinformatics involves





















the use of computers to collect, organize and use biological information to answer questions in fields like evolutionary biology.

- 8. Biomedical Science: The field of Biology and Medicine that involves the study of cells, organs and functioning of the systems in the human body with a primary focus on understanding the human health and diseases and to conduct medical research to treat those diseases.
- 9. Biotechnology: Biotechnology is the study that involves the use of living organisms. Biotechnology is mainly used in agriculture, food science, and medicine. In biotechnology, living organisms are used to make useful chemicals and products or to perform an industrial task.
- **10.Botany:** The scientific study of plants that is algae, fungi, lichens, mosses, ferns, conifers, flowering plants, vegetation and trees is called Botany. It includes studying its physiology, structure, genetics, its ecological habitat and its contribution to the natural ecosystem. It also deals with developing new hybrid species among them.
- 11.Chemistry: The discipline of science that study the chemical composition of matter, its properties, reactions with other substances and interaction with energy.
- 12.Computer Science: Computer Science comprises designing and analyzing algorithms to solve programs and study the performance of computer hardware and software.
- 13. Dairy Technology: Dairy Technology includes training in processing and quality control of milk and its products and engineering aspects of dairy processing equipment.
- **14.Electronics:** Electronics is a branch of physics concerned with the design of circuits and the study of electrons under a variety of conditions.
- **15.Environmental Science:** The interdisciplinary field of science dealing with the interaction of human system with the natural system in order to conserve the environment and to find solutions to the environmental problems. It involves

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the understanding of Earth processes, evaluating alternative sources of energy, pollution control, natural resource management and so on.

- **16.Exercise and Sports Science:** Excersice & Sport science is the study of how the healthy human body works during exercise, and how sport and physical activity promotes health – physically, mentally and socially. The study of sport science calls upon and uses many other academic studies and areas, like physiology, psychology, engineering, chemistry and anatomy.
- **17.Fashion Design/Technology:** The study of Fashion Design/Technology covers the study of fashion illustration, garment construction, flat pattern technology, draping, textiles, design synthesis, life drawing, color theory, designing collections.
- 18. Film Making: The education of Film Making is dedicated to teaching aspects of filmmaking, including subjects as film production, film theory, digital media production, and screenwriting.
- **19.Fire & Safety:** The Fire Safety Training Course is designed to raise awareness of fire hazards in the workplace and how to act safely in the event of an emergency fire situation, including selecting and using the correct fire extinguisher.
- **20.Food Technology:** Food technology is a branch of food science which majorly deals with the manufacturing, processing, preserving and packaging of food and its articles.
- 21.Forensic Science: Forensic science is the study of scientific techniques and methods to apply in order to investigate and solve crime scenes by collecting and analyzing biomedical evidences and administering various biomedical tests.
- **22.Forestry:** The study of Forestry trains students to grow, manage, and protect healthy forest ecosystems.
- **23.Genetics:** Genetics includes the study of structure and function of genes, chromosomes and genomes, biological variation resulting from recombination,

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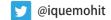




mutation, and selection, population genetics, use of genetic methods to analyze protein function, gene regulation and inherited disease.

- **24.Geology:** The study of physical aspects of the planet Earth and the processes occurring on and inside Earth such as Rocks, Mountains, Oceans, Volcanoes, Earthquakes, material inside the Earth, the structural composition and the changes occurring over time on Earth.
- **25.**Home Science: The science of managing household is called Home science. It is the application of the scientific knowledge to the family ecosystem where focus is on human development, food science and family nutrition, management of resources, child development, family relation, community living and much more.
- **26.Information Technology:** Information technology is the study, design, development, implementation, support or management of computer-based information system, particularly software applications and computer hardware.
- **27.Instrumentation:** The study of Instrumentation involves studying the science of automated measurement and control. Instruments are used to measure and control the condition of process streams as they pass through a Plant. Instruments are used to measure and control process variables such as: Temperature; Flow; Level; Pressure; Quality.
- 28.Interior Design: The study of Interior designing includes learning to make interior spaces functional, safe, and beautiful by determining space requirements and selecting decorative items, such as colors, lighting, and materials.
- **29.Life Sciences:** The branch of Natural sciences that studies all forms of living organisms such as micro organisms, plants, animals and humans with respect to its biology, physiological structure, anatomical composition, genetic makeup, biochemical composition, etc.
- **30.Mathematics:** The branch of science that involves study of shape, logics, quantity and arrangement. It includes pure and applied mathematics dealing

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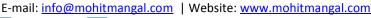






with theorems, principles, facts and figures and its application to solve real world problems.

- **31.Medical Technology:** The application based study of various scientific tests, procedures, equipments, and technology in order to diagnose patients of various diseases using bio-medical samples like blood, urine, stools, etc. in order to provide relevant treatment to the patient.
- **32.Microbiology:** The study of microscopic organisms including cellular microbes like bacteria, algae and fungi and acellular microbes like viruses that cause disease and environmental damage or are of industrial or agricultural interest. The study focuses on their biological composition and its impact on various factors.
- **33.Multimedia:** Multimedia is the field related to computer controlled integration of texts, (still or moving images) graphics, drawings, audio and animations.
- **34.Nautical Science:** The study of the theories and practical techniques to handle a ship and also to navigate safely from one point to another across the sea is Nautical Science. It also undergo the studies of ship collision prevention, ship stability and maintenance, marine signalling, etc.
- 35. Nursing: Nursing program revolves around four main components; health promotion, disease prevention, risk reduction and health restoration. Courses that nursing students may be required to take include anatomy, physiology, microbiology, chemistry, nutrition, and psychology.
- **36. Nutrition & Dietetics:** The branch of health care sciences that studies food nutrition and its interaction and impact with the human body as well as designing the well organised life style and healthy eating habits in order to improve the human health and eradicate malnutrition.
- **37.Physical Sciences:** Physical science is the study of all the non living aspects of the nature such as Earth, oceans, atmosphere, the space, and its features related to its composition, and changes happening with time.





















- **38.Physics:** The branch of science dealing with the study of nature and properties of matter and energy is called Physics. It includes concepts like heat, light, mechanics, sound, electricity, magnetism, etc. It also includes the study of Universe and its related phenomena.
- **39.Physiotherapy:** The study of Physiotherapy focuses on the use of physical therapy, massages, physical movements and exercise to improve and cure injuries, deformities and diseases. Along with rehabilitation, some other important sections of physiotherapy are- diagnosis, examination and assessment of the condition.
- **40.Polymer Science:** The field of material science dealing with the macromolecules or the polymers such as plastics and other synthetic material with respect to studying its chemical structure, its properties, efficient product development and developing new polymer compounds.
- **41.Psychology:** Psychology program teaches students about the brain, human behavior and social interactions. Psychology is the study of the human mind, mental processes and resulting behaviour.
- **42.Sericulture:** Sericulture teaches the process and methods of cultivation of silkworms through silk farming to produce silk. Although there are several commercial species of silkworms, Bombyx mori (the caterpillar of the domesticated silk moth) is the most widely used and intensively studied silkworm.
- 43. Statistics: The study concerning to the collection, organization, analysis and interpretation of numerical data using various statistical tools and procedures to draw inferences or results for better decision making is called Statistics. It is the branch of mathematics.
- **44.Zoology:** The study of animals and their physical characteristic, diet, behaviour, classification and distribution in the ecosystem, their interactions with ecosystem and the impacts humans have on them. It also considers the conservation of the endangered species.

















PURE SCIENCES Entrance Exams

Exams for Pure Sciences	Selection Process & Test Pattern	Questions (Marks)	Tentative Schedule & Remarks
KVPY (Kishore Vaigyanik Protsahan Yojana) For B.Sc./Integrated M.Sc. at IISc Bangalore/IISERs www.kvpy.iisc.ernet.in Time: 180 Minutes Timing: 900–1230 Hrs. Mode: Computer based	Maths Physics Chemistry Biology Total	Part 1 Part 2 15 (15) 5 (10) 15 (15) 5 (10) 15 (15) 5 (10) 15 (15) 5 (10) 60 (60) 20(40)	Forms Out: 2 nd week of July 2019 Last Date: 1 st Week of September 2019 Test Date: 1 st week of November 2019 Negative Marking: +1/2 &25/.50 Forms Available: Online Eligibility: Aggregate 75% in Maths and science in 10 th grade and aggregate 60% in Physics, Chemistry and Maths/Biology in 12 th grade
JEE Main- Paper 1 for BE/B.Tech at NIT's IIT's, IIIT's & other	Maths Physics Chemistry Total	30 (120) 30 (120) 30 (120) 90 (360)	Forms Out: Slot-1: 1 st Sep. 2018, Slot-2: 8 th Feb. 2019 Last Date:Slot-1: 30 th Sep. 2018, Slot-2: 7 th Mar. 2019 Test Date: Slot 1: 6 th -20 th Jan. 2019, Slot 2: 6 th -20 th April 2019 Marking: +4 / -1 Forms Available: Online Eligibility: Physics and Mathematics as compulsory subjects along with one of the Chemistry/ Biology/ Biotechnology/ Technical Vocational subject. Maximum three attempts allowed
JEE Advanced for Bachelor's, Integrated Master's or Bachelor-Master Dual Degree in Sciences at IIT's & some CFTI's Conducted by: Joint Admission Board o (JAB) www.jeeadv.ac.in Time: 180 + 180 Minutes Timing: 900-1200 & 1400-1700 Hrs. Mode: Computer Based	Maths Physics Chemistry Paper-1 (Same pattern for All 3 Subjects Section I = Physics, Section III = Chemistry, Section III = Maths, Each section has 3 Parts) Part I Part II Part III Total Paper-2 (Same Pattern as Paper-I) Gross Total	18 (60) 18 (60) 18 (60) 6 (24) 8 (24) 4 (12) 18 (60x3=180)	Form Out: After JEE Mains Results. 1 week window around May 1 st week 2019 Last Date: Open For About 7 Days till May 2 nd week 2019 Test Date: 3 rd week of May 2019 to be announced later Marking: Variable Negative Forms Available: Online Eligibility: Within 224000 Rank in JEE Main as per 2018 Notification. Maximum two consecutive attempts allowed.
NEET for BSc./Integrated M.Sc. at IISc, IISERs & others Conducted by: NTA www.ntaneet.nic.in Time: 180 Minutes Timing: 1000 - 1300 Hrs Mode: Pen & Paper Based	Physics Chemistry Biology Total	45 (180) 45 (180) 90 (360) 180 (720)	Form out: 1 st Nov 2018 Last Date: 30 th Nov 2018 Test Date: 5 th May 2019 Marking: +4/-1 Forms Available: Online Eligibility: 50% aggregate Marks in with Physics Chemistry and Biology.

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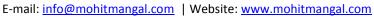








NEST For Integrated M.Sc. at University of Mumbai-Department of Atomic Energy & NISER www.nestexam.in Time: 180 Minutes Timing: 1000 - 1300 Hrs Mode: Computer Based	General Section Physics Chemistry Maths / Biology Total	30 (30) 50 (50) 50 (50) 50 (50) 180 (180)	Form out: 7 th Jan 2019 Last Date: 11 th March 2019 Test Date: 1 st June 2019 Marking: Differential Forms Available: Online Eligibility: Pass Class in grade 12 with Physics Chemistry and Maths/Biology.
For 5 Year Integrated M.Sc. at Birla Institute of Technology & Science www.bitsadmission.com Time: 180 Minutes 2 Slots on each day Timing: 900-1200 & 1400-1700 Hrs. Mode: Computer Based	Physics Chemistry English Logical Reasoning Maths Total	40 (120) 40 (120) 15 (45) 10 (30) 45 (135) 150 (450)	Form Out: 7 th Jan 2019 Last Date: 20 th March 2019 Test Date: 16 th to 26 th May 2019 Marking: +3/-1 Forms Available: Online Eligibility: Min 75% aggregated marks in 12 th with 60% in each subject of Physics, Chemistry and Mathematics.
CMI-EE For 4 Year BS Maths & Physics at Chennai Mathematical Institute www.cmi.ac.in Time: 180 Minutes Timing: 1000 - 1300 Hrs Mode: Computer Based	Maths (10+2 level)	30 (120)	Form out: 11 th March, 2019 Last Date: 12 th April, 2019 Test Date: 15 th May, 2019 Marking: Differential Forms Available: Online Eligibility: 10+2 with Mathematics and English.
ISI Admission Test for 3 Year BS Maths & Stats Indian Statistical Institute www.isical.ac.in Time: 120 Minutes Timing: 1000 - 1200 Hrs Mode: Computer Based	Maths (10+2 level)	30 (120)	Form out: 5 th Feb 2019 Last Date: 15 th March 2019 Test Date: 5 th May 2019 Marking: Differential Forms Available: Online Eligibility: 10+2 with Mathematics and English.
CUET For B.Sc. Courses at Christ University, Bangalore www.christuniversity.in Time: 120 Minutes Timing: As per the Admit card Mode: Pen & Paper Based	Skill Assessment (Written test) Personal Interview Academic performance	NA	Forms Out: 8 th Dec, 2018 Last Date: 18 th April & 8 th May, 2019 Test Date: 27 th April & 14 th May, 2019 Marking: NA Forms Available: Online Eligibility: 10+2 with Physics, Chemistry and Mathematics/Biology.



























Top 49 Pure Sciences Colleges with their Admission Process and Rankings

Rank	Best Pure Sciences Colleges in India	Admission Process	Website
Rank 1	IISc Bangalore	KVPY / JEE-MAIN	www.iisc.ernet.in
		/JEE-ADVANCED	
		/NEET-UG	
Rank 2	IIT Kharagpur	JEE Advanced	www.iitkgp.ac.in
Rank 3	IIT Madras	JEE Advanced	www.iitm.ac.in
Rank 4	IIT Roorkee	JEE Advanced	www.iitr.ernet.in
Rank 5	IIT Bombay	JEE Advanced	www.iitb.ac.in
Rank 6	IIT Kanpur	JEE Advanced	www.iitk.ac.in
Rank 7	IISERs (Multilocation)	KVPY / JEE-MAIN	www.iisersystem.ac.in
		/JEE-ADVANCED	
		/NEET-UG	
Rank 8	University of Mumbai-Dept. of	NEST	www.cbs.ac.in
	Atomic Energy		
Rank 9	NISER-Bhubaneshwar	NEST	<u>www.niser.ac.in</u>
Rank 10	Miranda House - Delhi	Based on 12th Marks	www.mirandahouse.ac.in
Rank 11	Hindu College - Delhi	Based on 12th Marks	www.hinducollege.org
Rank 12	Christ University) - Bangalore	CUET	www.christuniversity.in
Rank 13	Madras Christian College(MCC) -	Based on 12th Marks	www.mcc.edu.in
	Chennai		
Rank 14	Loyola College - Chennai	Based on 12th Marks	www.loyolacollege.edu
Rank 15	Hansraj College - Delhi	Based on 12th Marks	www.hansrajcollege.co.in
Rank 16	Stella Maris College - Chennai	Based on 12th Marks	www.stellamariscollege.org
Rank 17	Ramjas College - Delhi	Based on 12th Marks	www.ramjascollege.edu
Rank 18	Gargi College - Delhi	Based on 12th Marks	www.gargi.du.ac.in
Rank 19	The Oxford College of Science -	Based on 12th Marks	www.theoxford.edu
	Bangalore		
Rank 20	Sri Venkateswara College - Delhi	Based on 12th Marks	www.svc.ac.in
Rank 21	Mount Carmel College - Bangalore	Based on 12th Marks	www.mountcarmelcollegeblr.co.in
Rank 22	Women's Christian College -	Based on 12th Marks	www.wcc.edu.in
	Chennai		
Rank 23	St. Francis College for Women -	Based on 12th Marks	www.sfc.ac.in
	Hyderabad		
Rank 24	St. Xavier's College – Ahmedabad	Based on 12th Marks	www.sxca.edu.in
Rank 25	Mithibai College - Mumbai	Based on 12th Marks	www.mithibai.ac.in

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Rank	Best Pure Sciences Colleges in India	Admission Process	Website
Rank 26	ST. Wilfred Group of Colleges -	Based on 12th Marks	<u>www.stwilfreds.com</u>
	Jaipur		
Rank 27	Kristu Jayanti College - Bangalore	Based on 12th Marks	www.kristujayanti.edu.in
Rank 28	Ethiraj College for Women - Chennai	Based on 12th Marks	www.ethirajcollege.in
Rank 29	MCM DAV College for Women -	Based on 12th Marks	www.mcmdavcw-chd.edu
	Chandigarh		
Rank 30	GGDSD College Sector 32 -	Based on 12th Marks	www.ggdsd.ac.in
	Chandigarh		
Rank 31	M. G. Science Institute - Ahmedabad	Based on 12th Marks	www.ngscience.ac.in
Rank 32	Sophia College for Women -	Based on 12th Marks	www.sophiacollegemumbai.com
	Mumbai		
Rank 33	D A V College-Sec 10 - Chandigarh	Based on 12th Marks	www.davc.com
Rank 34	Deen Dayal Upadhyay College -	Based on 12th Marks	www.dducollege.du.ac.in
	Delhi		
Rank 35	Government College for Girls -	Based on 12th Marks	www.gcg11.ac.ac.in
D 1 00	Chandigarh	D 421 M	
Rank 36	Vivekananda College - Kolkata	Based on 12th Marks	www.vivekananda-college.org
Rank 37	MLACW, Bangalore	Based on 12th Marks	www.mlacw.org
Rank 38	St. Xavier's College - Mumbai	Based on 12th Marks	<u>www.xaviers.edu</u>
Rank 39	Presidency College - Bangalore	Based on 12th Marks	www.presidencycollege.edu.in
Rank 40	Kirori Mal College - Delhi	Based on 12th Marks	www.kmcollege.ac.in
Rank 41	Indraprastha College for women -	Based on 12th Marks	www.ipcollege.ac.in
David 42	Delhi Callaga far Maraga	Danadan 42th Manto	
Rank 42	St. Ann's College for Women-	Based on 12th Marks	www.stannscollegehyd.com
Rank 43	Hyderabad Ramakrichna Mission Vidyamandira	Based on 12th Marks	www.vidyamandira.ac.in
Kalik 45	Ramakrishna Mission Vidyamandira - Kolkata	baseu on 12th Marks	www.viuyamanuna.ac.m
Rank 44	Shivaji College - Delhi	Based on 12th Marks	www.shivajicollege.ac.in
Rank 45	Ramniranjan Jhunjhunwala College -	Based on 12th Marks	www.rjcollege.edu.in
Nain 43	Mumbai	Dasca on TZUI Ivial KS	www.ijconege.cuu.iii
Rank 46	Isabella Thoburn College - Lucknow	Based on 12th Marks	www.itcollege.ac.in
Rank 47	M.S.Ramaiah Degree College -	Based on 12th Marks	www.msrcase.edu.in
Toma Ti	Bangalore	20300 OH IZHI MUNG	
Rank 48	St. Joseph's Degree & PG College -	Based on 12th Marks	www.josephscollege.ac.in
	Hyderabad		.,,,
Rank 49	St. Mira's College for Girls - Pune	Based on 12th Marks	www.stmirascollegepune.edu.in
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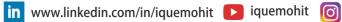
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About the Author



Trained in Structural Engineering along with a Master's Degree in Management under his hat, Mr. Mohit Mangal is a Nationally Renowned Career Counselor and Motivational Speaker. Mr. Mohit quit his cushy job in a top FMCG Company in 2003, against much reservations and apprehensions of his peers, since he felt driven by the quest to help students find their right career path. Having found his own path the hard way around, he was equipped with the detailed know-how of the dilemmas that students face and the challenges that the very dynamic professional market throws at the student community. He felt confident about guiding them in the right direction.

Today, more than 17 years later, Mr. Mangal has delivered more than 1500 talks across India and helped more than 6 lakh students identify their right path forward. He has counseled more than 25000 students through his indigenously developed tool called "BrainMapping".

Driven by the assurance of having made substantial difference, and motivated by the zeal to surpass his own self, Mr. Mohit along with his team continues to deliver career awareness workshops, design and use Self-Assessment tools for school and college students, and offer guidance to more than 1,00,000 students each year. He also works with college students and professionals, who need help in identifying and fine tuning their Career Goals at different points in their professional life to attain even higher goals.

Mr. Mohit runs iQue Foundation for Youth Awareness, which is Section-8 Not-for-Profit Organisation that is devoted to create awareness amongst the youth on relevant, contemporary and topical issues of the day, Career Awareness being one of those.

He has been a Guest Faculty at some of the premier institutes of the nation including IIT-Delhi, IIT-Mumbai, IIM-Ahmedabad, IIM-Bangalore, $National \ Institute \ of \ Design, \ National \ Institute \ of \ Fashion \ Technology \ and \ Gujarat \ Institute \ of \ Disaster \ Management \ to \ name \ a few.$

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NOTE: The Compiled Content including dates, definitions, degree nomenclatures, entrance exams details etc. in the book has been gathered from various authentic sources like UGC, MHRD, Individual College or Institution websites Etc. This data is being used for educational and information giving purpose. The author acknowledges all sources whether mentioned or otherwise.

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