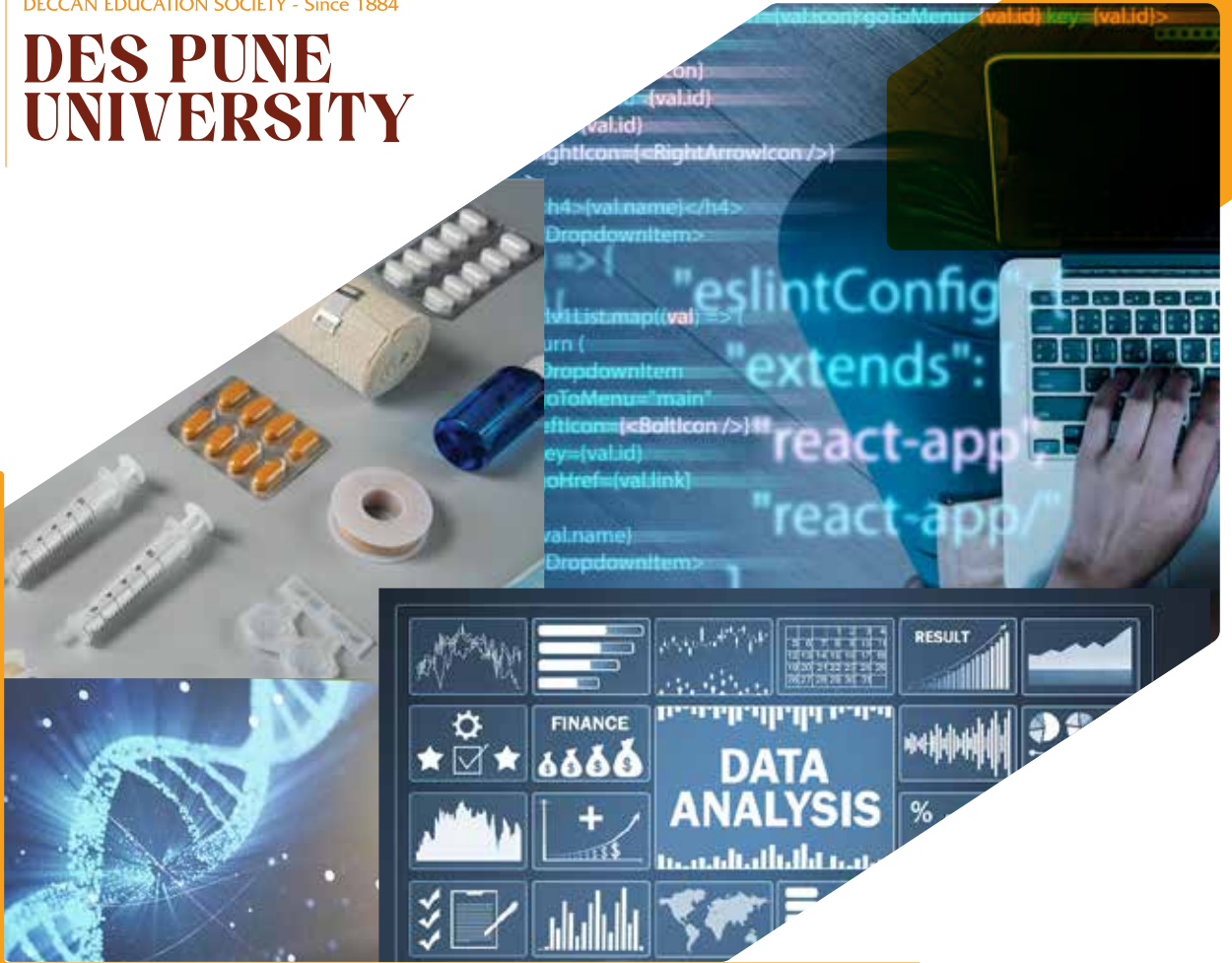




# School of Science and Mathematics

# About Deccan Education Society



Rajarshi Chhatrapati  
Shahu Maharaj



Lokmanya  
Tilak



Gopal Ganesh  
Agarkar



Vishnushastri  
Chiplunkar



Madhav Ballal  
Namjoshi



Vaman Shivram  
Apte

Deccan Education Society (DES) was established on 24th October, 1884 holds a revered place in the educational landscape of our nation and is parent body of DES Pune University (DES PU). Born from the lofty ideals and fervent aspirations of four young firebrand nationalists, who were barely in their twenties and thirties, the Society believed

that education was the most effective means to bring about social transformation among the Indian populace and to achieve political emancipation from the grip of foreign rule. For over 139 years, the Deccan Education Society has wholeheartedly served our nation.

## About DES Pune University



Fergusson College  
1885



Willingdon College  
1919



Brihan Maharashtra  
College of Commerce  
1943



Kirti M. Deongursee  
College  
1954



DES Pune University  
2023

**#universitywithlegacy**

DES Pune University, Pune (DES PU), enacted by the Government of Maharashtra (Act No. XXXIX of 2023), emerges as a beacon of modern education, driven by an unwavering commitment to research, creativity, and innovation. At DES PU, our vision is to cultivate a thriving educational ecosystem that fosters holistic growth, intellectual curiosity, and global competitiveness. Our motto “ज्ञानानुसन्धाने” or “In Pursuit of Knowledge” reflects our vision of establishing a university for knowledge generation. We offer a comprehensive range of Programmemes and extensive research opportunities in diverse academic domains. These Programmemes are meticulously curated to equip students with not only academic prowess but also the practical skills and global perspective essential for success in the modern world. At DES PU, we recognise the profound impact of original research and innovative thinking. Our institution is dedicated to nurturing an environment that encourages curiosity-driven exploration and ground -breaking discoveries across disciplines

# SCHOOL OF SCIENCE AND MATHEMATICS

School of Science and Mathematics is a hub of academic excellence offering a diverse array of undergraduate and postgraduate Programmes designed to foster interdisciplinary learning and research-driven education. Explore the exciting Programmes we offer and discover how our unique approach sets us apart:

## Programmes (NEP 2020 Compliant)

B.Sc.  
Computer  
Science

M.Sc.  
Computer  
Science

M.Sc.  
Data Science

MCA  
(Master of Computer  
Applications)

M.Sc.  
Statistics

M.Sc.  
Bioinformatics

PG Certificate  
Programme in  
Clinical Research  
and Clinical Data  
Management

Ph.D  
Programmes

## Features

- **Interdisciplinary Focus:** Our Programmes transcend traditional boundaries, blending science and mathematics with practical applications in technology and research.
- **Research-Oriented:** Emphasis on research and innovation, encouraging students to explore new frontiers and contribute to advancements in their fields.
- **Experiential Learning:** Hands-on learning through case studies, research projects, and industry internships to provide practical skills and insights.
- **Industry Connect:** Strong industry partnerships ensure relevance and currency of curriculum, preparing students for real-world challenges and opportunities.
- **Joint Research Projects:** Our collaboration with CIIMS, Nagpur, provides access to case studies and real data, enhancing learning and research outcomes. Also facilitate collaborative research projects

# B.Sc. COMPUTER SCIENCE

A Bachelor of Science (B.Sc.) in Computer Science is a 3 year degree and 4 years honors Programme that focuses on the study of computer systems, software development, Programmeming languages, algorithms, and various aspects of computing. Upon completing B.Sc. in Computer Science, graduates are equipped with the knowledge and skills needed for various roles in the IT industry, including software development, system analysis, database administration, network management, and more. Additionally, it can serve as a foundation for pursuing further education or specializing in specific areas of computer science through postgraduate studies.

## Eligibility

Minimum 50% aggregate score in 10+2/Class 12th or in equivalent examination in science stream with Mathematics subject (at least 45% marks, in case of Reserved Class category candidate belonging to Maharashtra State only)

OR

Minimum 55% aggregate score in any 3 years Engineering Diploma from any UGC approved University or equivalent.

## Selection Procedure

The selection process for the Programme is based on DES PU UCET – Computer Science Entrance Exam 2024 & Personal Interaction (PI) score.



## Programme Highlight

- **Scale:** This Programme goes beyond mere theory; it demands a cognitive approach to refine analytical skills, foster logical thinking, and enhance computational abilities.
- **Comprehensive learning:** This Programme provides a holistic and well-rounded understanding of the subject, and the ability to apply learning in real-world situations.
- **Curriculum:** The NEP-based curriculum provides exposure to various branches of computer science, allowing you to explore and choose the one that aligns with your interests as a potential career path

## Career Opportunity

- Software developer
- Software Tester
- Database designer
- Game developer
- IT Professional
- Computer Programmer
- Systems Integrator

## Programme Structure

- Open electives from other schools
- EVS
- Soft Skill
- Yoga
- IKS

- Open electives from other schools
- Health wellness/ NCC/NSS
- Field Project
- Digital Security
- Community Engagement

- TCS/ Mobile Computing/ DAA/ Data Science
- Field Project
- On Job Training
- IoT

- Data analytics
- Responsive UI
- On Job Training
- Research Methodology

- Create and manage data,
- Design and maintain simple websites
- Solve simple problems

- Design and test application
- Ability to choose appropriate structure
- Understand networking

- Design software architecture and implement Project
- Work in Object oriented paradigm
- Understand security of information
- Industry ready

- Research Orientation
- Industry ready
- Understand different paradigms

- Databases
- Problem Solving
- Web Development
- Managing data

- Data Structure
- Networking
- Stats/ Math/ Electronics
- Software engineering / testing

- Information Security
- Operating System
- OOPs Paradigm
- Advance Database Concepts

- Cloud Computing
- AI
- Data Mining
- Soft Computing
- MERN STACK
- PPL



# M.Sc. COMPUTER SCIENCE

This Programme is designed to elevate the formal education of B.Sc. (Computer Science) graduates by equipping them with a robust technical foundation in the latest and emerging technologies within the field of Computer Science. Distinguished by its emphasis on core Computer Science subjects, the M.Sc. (Computer Science) Programme incorporates advanced and cutting-edge trends. It uniquely offers the opportunity for students to engage in internships with industry partners, bridging the gap between academia and real-world application.

## Eligibility

Minimum 50% aggregate score in B.Sc. (Computer Science)/ BCS/ B.Sc. (IT)/ B.Sc. degree with Computer Science as one of the core subjects (at least 45% marks, in case of Reserved Class category candidate belonging to Maharashtra State only)

OR

Minimum 50% aggregate score in Bachelor of Engineering in Computer Science/ Information Technology/Electronic Telecommunication

OR

Minimum 50% aggregate score in B.Voc. in Software Development/ Information Technology

## Selection Procedure

The selection process is based on score in DES PU PCET - Computer Science 2024 and Personal Interaction (PI) score.



## Programme Highlight

- **Unceasing Learning and Resilience:** A timeless, never-ending commitment to learning, the process of growth. Adopt the culture of being receptive to the continuous change in technology.
- **Career-Centric Learning Path:** The adaptable curriculum allows you to tailor your learning experience by selecting electives that align with your goals. Embrace the opportunity to customize your learning journey and propel your career forward with confidence.
- **Research Emphasis:** Contribute to the progression of knowledge within distinct realms of computer science. The project and research thesis shows you new horizons.

## Career Opportunity

- Software Engineer
- Database Administrator
- Network Architect
- IT Consultant
- Systems Analyst
- Cloud Solutions Architect
- Academic/Researcher
- Project Manager
- Tech Entrepreneur

## Programme Structure

- Full Stack
- Analysis of Algorithms and Computing
- Research Methodology

### Semester I

- Advanced Operating System
- Software Quality and Assurance
- Information, Security and Privacy
- Machine Learning
- Computer Vision

- MEAN or MERN Stack
- Artificial Intelligence
- On Job Training

### Semester II

- Business Intelligence
- Predictive analytics and data visualization
- Representation, Inference and Reasoning in AI
- Optimization Methods
- Processing Big Data for Analytics Applications

- Soft Computing
- Database Technologies
- Research Project

### Semester III

- Human Computer Interaction
- Software Design
- Intelligent Multimodal user interface
- Interactive data visualization
- Cryptography and Cyber Forensics

- Software Metrics and Project Management
- Web Services
- Internship

### Semester IV

- Block Chain Applications
- Mobile App Development
- Cloud Computing
- Game Development
- Parallel computing

# M.Sc. DATA SCIENCE

This is a two-year, four-semester Programme that presents balanced blend of Data Analytics, Statistics, Mathematics, Machine Learning and Deep Learning etc.,

This Programme provides students with the unique opportunity to tackle data-intensive challenges in industries like Healthcare, Manufacturing, Humanity, and IT, by making sense of data and generating meaningful insights. Demonstration of end-to-end case studies showcasing application of Data Science in a particular domain by experts.

After completion of M.Sc. in Data Science degree, students are sought in various industries for their ability to extract valuable insights from data and contribute to the decision-making processes.

## Eligibility

Minimum 50% aggregate score at Graduate degree in Data Science/ Statistics/ Mathematics / Computer Science/ Computer Applications/ Engineering/ Technology or any other discipline with Mathematics/ Statistics as one of the subjects in graduation (at least 45% marks, in case of Reserved Class category candidate belonging to Maharashtra State only)

## Selection Procedure

The selection process is based on score in DES PU PCET – Data Science 2024 and Personal Interaction (PI) score.

## Programme Structure



### Building Foundation

- Understand and analyse the data
- Learn algorithms and techniques
- Building research aptitude
- Basics of Data Science



### Data Science Learning

- Machine Learning
- Soft Computing
- Data pipelining/ Data Warehousing
- Analytics and Storytelling
- Statistical Inference



### Specialised Skills

- Domain specific case study
- Big Data Analytics
- Data Science project management
- Deep Learning
- Acquiring industry relevant Data Science skills



### Industry Exposure

- Internships
- Live Projects
- Learning Advanced Skills



## Programme Highlight

- **Experiential Learning:** It emphasizes practical skills needed to excel in the data driven world.
- **Tailored Specialization:** Domain Insights: Considering the widespread application of Data Science in various domains, it is crucial to comprehend the intricacies of each domain, including its jargon and terminologies. Therefore, domain experts from diverse fields are invited to share case studies, illustrating the application of data science within their specific domains.
- **Industry Connection:** Experience a Fusion of Industry and Academia to elevate your technical skills with Collaborative Lecture Series, Projects, On Job Training and Internships.

## Career Opportunity

- Data Scientist
- Machine Learning Engineer
- Data Analyst
- Data Engineer
- Business Intelligence (BI) Analyst
- Data Architect
- Data Science Consultant
- AI Research Scientist

# MCA

MCA is a comprehensive two-year post-graduate technical Programme to enhance students' software development skills. This Programme is designed to equip students with the skills necessary to excel in the realm of computers, regardless of their prior background. It provides students with a solid foundation in computer science, enabling them to embark on a career in the field. It equips students with application-oriented skills to develop innovative solutions. This Programme helps students understand the implications of future developments in computer applications and technology on individuals and society.

## Eligibility

Minimum 50% aggregate score in any graduate degree (e.g., B.E. / B.Tech./ B.Sc. / B.Com. / B.A. /B.Voc. / BCA etc) preferably with Mathematics at 10+2 level or at Graduation level (at least 45% in case of candidates of Reserved Categories, belonging to Maharashtra State only)

## Selection Procedure

The selection process is based on score in DES PU PCET - Computer Application 2024 and Personal Interaction (PI) score.



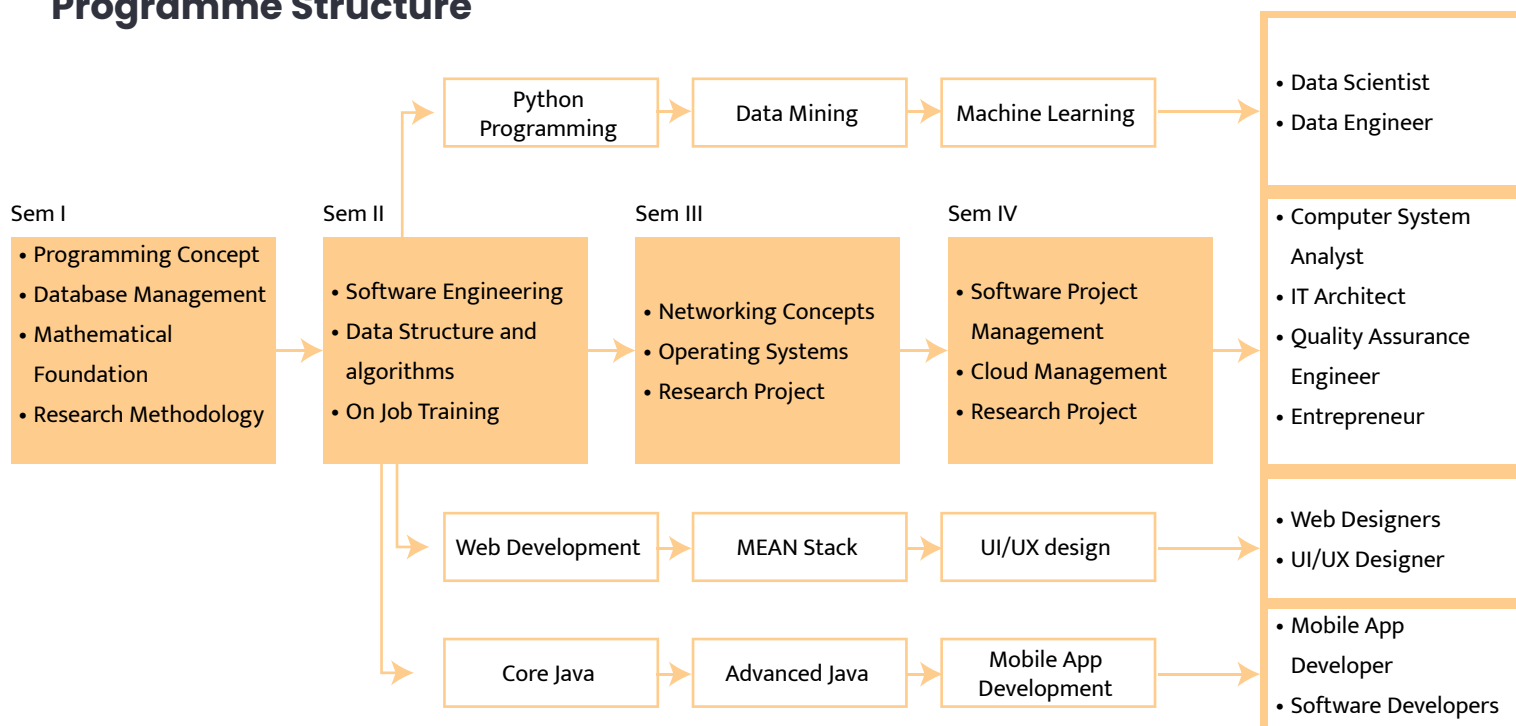
## Programme Highlight

- **Intricately crafted syllabus:** Considering the diverse backgrounds of students, it is imperative for them not only to become market-ready but also to acquire a profound understanding of the subject matter.
- **Stimulating Environment:** Beyond essential resources such as a well-equipped library, updated laboratories, and proficient teachers, the critical factor is the conducive environment. It is within this environment that the essence of continuous learning and the pursuit of excellence thrive.
- **Integrated Nurturing:** Here, you are encouraged to identify the challenges within your specific domain and explore how your computer knowledge can contribute to solving these issues. So, in addition to your domain expertise, the organization nurtures the growth of computer skills, communication abilities, leadership qualities, and a solution-oriented mindset.

## Career Opportunity

- Web Designers
- Database Engineers
- Software Developers
- Computer System Analyst
- IT Architect
- Mobile App Developer
- Quality Assurance (QA) Engineer
- Entrepreneur
- Data Scientist
- UI/UX Designer

## Programme Structure



# M.Sc. STATISTICS

The M.Sc. Statistics Programme which provides abundant opportunities for research and practical applications in diverse industries. Over the two-year duration, students will participate in internships and field projects, applying their expertise to interdisciplinary initiatives. Research prospects abound, with a focus on emerging areas of science and technology through various research projects.

## Eligibility

Minimum 50% aggregate score in B.Sc. in Statistics (at least 45% in case of candidates of Reserved Class categories belonging to Maharashtra State only)

OR

Minimum 50% aggregate score in B.Sc. (Mathematics/ Data Science/ Machine Learning/ Computer Science/ Actuarial Science) / BE/ B.Tech. with Statistics as one of the regular subjects in their undergraduate Programme (at least 45% in case of candidates of Reserved Class categories belonging to Maharashtra State only)

OR

Minimum 50% aggregate score in M.Sc. in Mathematics / MA Mathematics

OR

Minimum 50% aggregate score in BA with Statistics as one of the subject / BA Statistics

## Selection Procedure

The selection process is based on score in DES PU PCET – Statistics 2024 and Personal Interaction (PI) score.

## Programme Structure

### Sem I

- Gain foundational knowledge in mathematical analysis
- Understand vector spaces, matrices, and linear transformations
- Study various probability distributions
- Learn statistical methods and models applicable in actuarial science
- Understand mathematical optimization techniques
- Develop practical research skills

### Sem II

- Mastery of inferential methods using parametric models
- Understanding of fundamental probability concepts
- Proficiency in regression analysis for prediction
- Specialization in analysing survival data or time-dependent data patterns
- Application of statistical techniques in real-world scenarios

### Sem III

- Proficiency in analysing random processes
- Skill in analysing and interpreting multivariate data
- Ability to plan and conduct experiments efficiently
- Specialization in applying statistical methods to financial data
- Hands-on experience in conducting statistical research

### Sem IV

- Proficiency in probabilistic reasoning and updating beliefs
- Mastery in sampling techniques for data analysis
- Skill in extracting insights and patterns from large datasets
- Specialization in statistical methods for AI applications
- Application of statistical methods in professional work environment



## Programme Highlight

- **Skill Driven journey:** The Programme prioritizes the cultivation of skills necessary for proficiently applying statistical and computational techniques. It ensures that students are well-prepared to contribute effectively to data-driven decision-making processes.
- **Collaborative learning:** Here, the students actively contribute to shared comprehension, promoting critical thinking and peer teaching through collaborative activities such as group projects, case studies, and discussions.
- **Problem solver approach:** Discover the transformative role of statistics in different fields. This Programme highlights your potential to contribute to decision-making, serving as the cohesive force that brings diverse communities together.

## Career Opportunity

- Statistician
- Data Scientist
- Actuary
- Quantitative Analyst
- Educator/Researcher
- Consultant



# M.Sc. BIOINFORMATICS

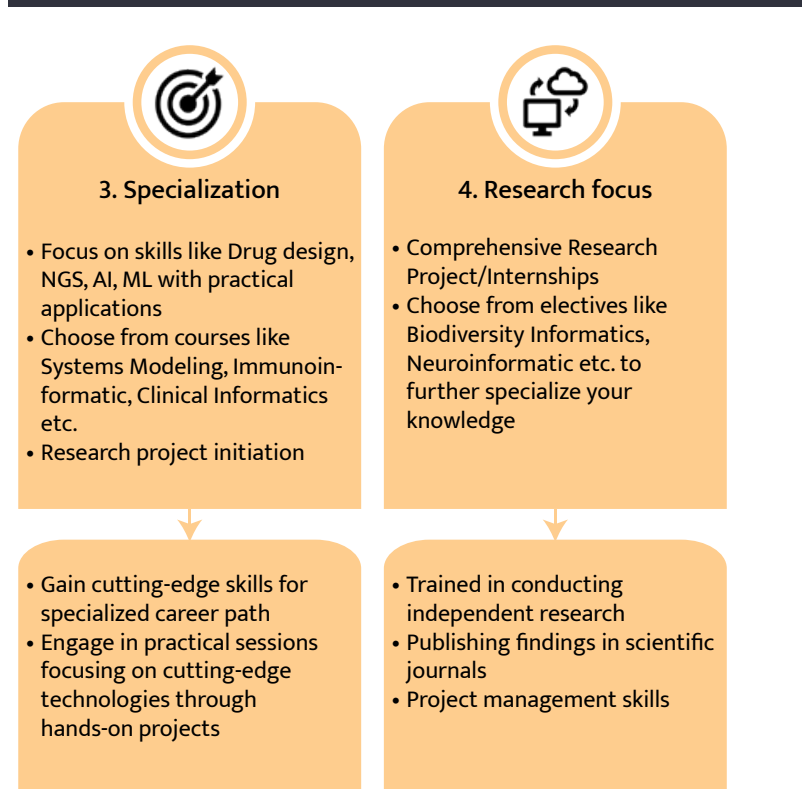


## Programme Highlight

- **Interdisciplinary Curriculum:** Blend of academic coursework that integrates biology and advanced computational techniques to solve modern biological challenges.
- **Focus on Hands-on approach:** Emphasis is placed on hands-on experience through laboratory work, internships, and research projects.
- **Research-Driven Learning:** Focus on integrating research module throughout the curriculum and projects at every semester and encouragement towards academic publication.
- **Industry-Relevant Skills:** Courses are designed to align with industry needs, ensuring that graduates are equipped with the skills needed in pharmaceuticals, biotechnology, healthcare, and academic research institutions.

## Career Opportunity

- Bioinformatics Research Scientist
- Computational Biologist
- Bioinformatics Analyst
- Bioinformatics Programmer / Software developer
- Clinical Bioinformatician
- Pharmaceutical Research Scientist
- Academics: teaching and research
- Medical coder/ Healthcare Informatics
- Entrepreneur /Start-up



Our M.Sc. Bioinformatics is an interdisciplinary Programme, focusing on areas such as biology, computer science, statistics, data science, machine learning, drug design, next-generation sequencing and more. This Programme will instruct you on analysing, integrating, visualizing, and manipulating extensive datasets, enabling the insights in the field of biological sciences.

After completion of this Programme one can pursue careers at the intersection of biology and computational sciences and can be absorbed in research institutions, pharmaceutical companies, biotechnology firms, healthcare, academia etc.

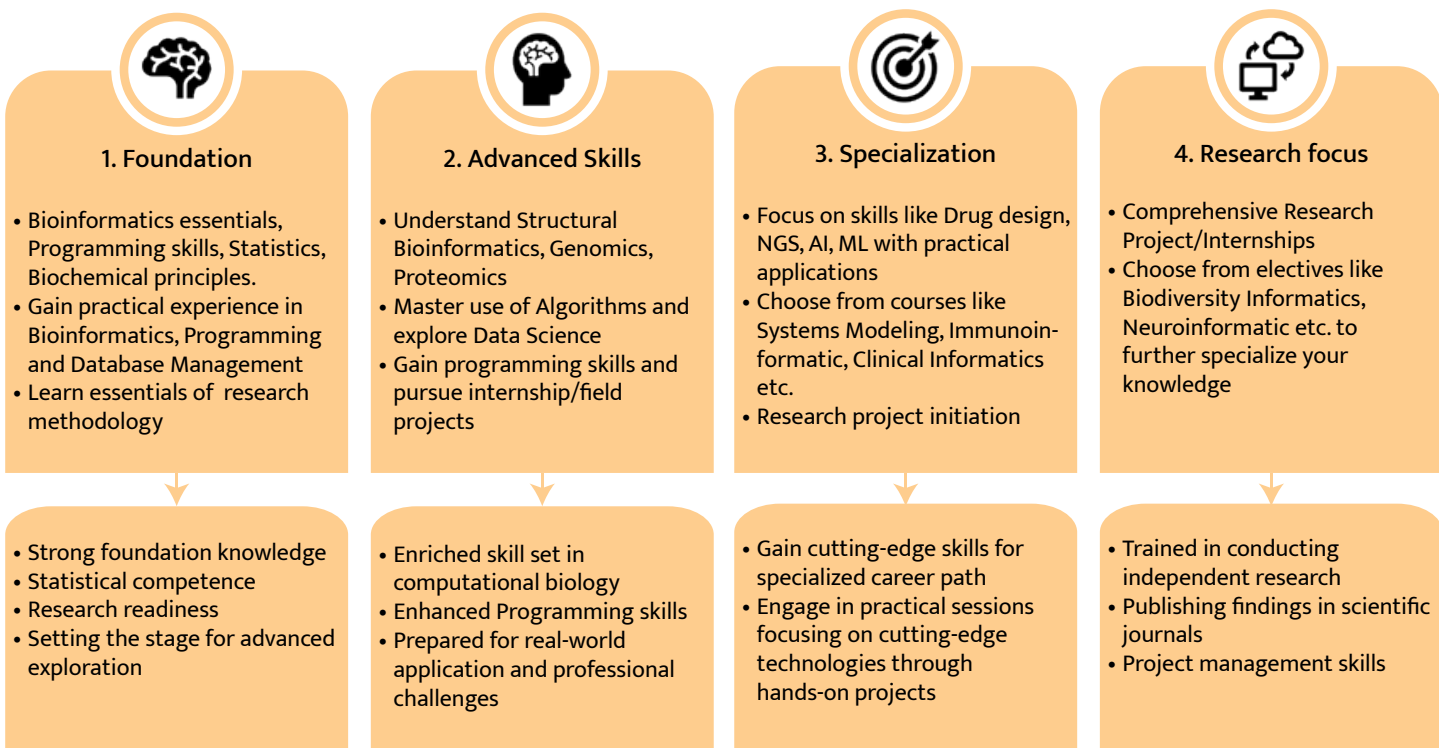
## Eligibility

Minimum 50% aggregate score in B.Sc. degree in any area of pure or applied Life Sciences/ Physical Sciences/ Chemical Sciences/ Statistics/ Mathematics/ Computer Science OR B.E./ B.Tech./ M.B.B.S./ B.A.M.S./ B.H.M.S./ B.Pharm/ B.V.Sc. etc.(at least 45% marks in case of Reserved Class category candidate belonging to Maharashtra State only)

## Selection Procedure

The selection process is based on score in DES PU PCET – Bioinformatics 2024 and Personal Interaction (PI) score.

## Programme Structure



# PGC CLINICAL RESEARCH AND CLINICAL DATA MANAGEMENT

Clinical research is a vital and indispensable pillar of modern medicine, driving innovation, improving patient care, and saving lives. It fosters collaboration among researchers, healthcare providers, regulators, and patients to advance healthcare and enhance and refine outcomes for humanity. This is a six-month certificate Programme conducted exclusively on weekends, specifically on Saturdays and Sundays.

## Eligibility

- A bachelors degree in the field of bioscience or life science.
- A bachelors degree in pharmaceutical sciences.
- A bachelors degree in medicine, including Allopathy, Physiotherapy, Homeopathy, Ayurveda, Unani, Dental, and related fields.
- A bachelor s degree in nursing.

## Selection Procedure

The selection process relies on the marks obtained in the qualifying degree examination and a personal interview.

## Programme Structure

| Introduction to Clinical Research - Clinical Research Guidelines                                                                                                                                                            |                                                                                                                                                                                                                            |                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Basics of Clinical Trials</li><li>• Role of Research Teams</li><li>• Importance of Protocols</li></ul>                                                                              | <ul style="list-style-type: none"><li>• Ethical Guidelines</li><li>• ICMR Guidelines</li><li>• Regulatory Standards of different countries</li><li>• ICH-GCP</li><li>• Patient Safety</li><li>• Informed Consent</li></ul> | <ul style="list-style-type: none"><li>• Drug Development Process</li><li>• Clinical Trial Design</li><li>• Regulatory Affairs</li><li>• Research Methodology</li></ul>                |
| Clinical Data Management                                                                                                                                                                                                    |                                                                                                                                                                                                                            | Monitoring of Clinical Trials                                                                                                                                                         |
| <ul style="list-style-type: none"><li>• Data Collection Methods</li><li>• Data Quality Assurance</li><li>• Database Design</li><li>• Data Validation</li></ul>                                                              |                                                                                                                                                                                                                            | <ul style="list-style-type: none"><li>• Trial Monitoring</li><li>• Site Visits</li><li>• Compliance Checks</li><li>• Audit and Inspection</li><li>• Adverse Event Reporting</li></ul> |
| Pharmacovigilance                                                                                                                                                                                                           |                                                                                                                                                                                                                            | Medical Writing                                                                                                                                                                       |
| <ul style="list-style-type: none"><li>• Drug Safety Monitoring</li><li>• Risk Management</li><li>• Signal Detection</li><li>• Reporting Systems</li></ul>                                                                   |                                                                                                                                                                                                                            | <ul style="list-style-type: none"><li>• Writing Clinical Reports</li><li>• Writing Protocol</li><li>• Study Documentation</li><li>• Scientific Publication</li><li>• MEDRA</li></ul>  |
| Clinical Trials Stakeholders                                                                                                                                                                                                |                                                                                                                                                                                                                            |                                                                                                                                                                                       |
| <ul style="list-style-type: none"><li>• Investigator</li><li>• Regulatory Agencies</li><li>• Sponsor</li><li>• Ethics Committees</li><li>• CROs (Contract Research Organizations)</li><li>• Patients/Participants</li></ul> |                                                                                                                                                                                                                            |                                                                                                                                                                                       |

## Programme Highlight

- **Industry-Relevant Skills:** Acquire practical skills in designing clinical trials, managing data, and ensuring compliance with regulatory standards.
- **Flexible Schedule:** Designed for working professionals, our Programme runs on weekends to accommodate your busy schedule.
- **Expert Faculty:** Learn from seasoned professionals and industry experts who bring real-world insights to the classroom.

## Career Opportunity

These sectors offer diverse opportunities for professionals to contribute to the advancement of healthcare and medical science:

- Pharmaceutical Companies
- Clinical CRO (Contract Research Organization)
- Biotechnology Company
- Clinical Data Management Companies
- Pharmacovigilance Centres
- IT Companies in Healthcare
- Central Laboratories
- Packaging Labelling and Contract Manufacturers
- Data Management CROs (Contract Research Organization)

Outlined below are some of the promising career avenues within the Clinical Research Industry:

- Clinical Research Associate (CRA)
- Clinical Research Investigator (CRI)
- Clinical Trial Assistant (CTA)
- Clinical Research Manager
- Medical Writer
- Medical Coding Specialist
- Clinical Trial Auditor
- Medical and Regulatory Affairs Officer
- Project Manager
- Clinical Trial Writer



DECCAN EDUCATION SOCIETY - Since 1884

**DES PUNE  
UNIVERSITY**

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\*Details mentioned here are subject to change.