

## Department of Bengali

- The course prepares students for teaching and instils within them a flair for Creative Writing.
- The course serves as a basis for further higher studies and research in this field.
- Students gain proficiency to interpret and analyse literary theory and learn intersexuality.
- The students gain mastery over general linguistic theory and fundamental understanding of core areas of language analysis including phonology, morphology, syntax and pragmatics.

## Department of English

- The course aims to develop critical reading, thinking, writing and research skills in our students.
- The course serves as a basis for pursuing research in the varied fields of canonical and non-canonical literary studies, gender studies, film studies, digital humanities and other allied disciplines. It also serves as a springboard for students interested in pursuing journalism, advertisement and related areas.
- On completing this course, students learn to employ a strong understanding of the contexts of literature (such as culture, race, gender, genre, sociohistorical issues and production technologies) and the insights of critical theory.
- Students also learn to participate actively in the theoretical discussions central to the field, conduct independent research, construct a sustained sophisticated and original argument on a specialized topic and present their research coherently and persuasively.

## Department of Hindi

- The course teaches students not to mug up texts prescribed in the syllabus but also instills within them a quest for reading other literary texts.
- The Course prepares them for pursuing research and to explore the rich galore of Hindi Literature.
- The Course is interdisciplinary in approach, helps in personality development of students and it is also designed for better career objectivity of them.

## Department of History

- Students are taught to build a spirit of enquiry and a quest for research in the interfaces between South Asian history and global history, from the early modern to the colonial and postcolonial periods, focussing especially on India's interactions with the Islamic world and with Europe and North America.
- Intensive scholarship on South Asian communities is combined with transnationally-oriented studies of entangled intellectual and social-political networks that span the extra-Indian world.
- We also promote rigorous training in language Persian and Sanskrit to promote original research.

## Department of Philosophy

With a well-balanced proportion of diverse concerns of contemporary philosophy and cultivating synchronization between tradition and modern thought we encourage our students to become dedicated, responsible and help them build career in the world of academics, bureaucracy and mass communication. The department is proud to be associated with excellent students and faculty members. Our graduate program produces students with comprehensive knowledge in different branches of the subject.

## Department of Political Science

- Encourages students to participate in seminars and present papers which will eventually help them develop a better and deeper understanding of the syllabus.
- The pedagogy involves guiding students to write dissertations and term papers from undergraduate classes beyond formal lecturing.
- Acquaints them to not only the constitution of India but also gives vivid details of the constitution of other countries.

## Department of Sociology

- Teaches students to develop an engagement with the social reality around them weaving together sociological ways of looking at everyday life, theoretical abstractions of various kinds, and a critical analysis of the past and present of society in India.
- Creates constitutive linkages between sociology/anthropology, classical and contemporary philosophy, cultural studies, history and philosophy of science, religious studies, visual anthropology, gender studies, economic theory and other such affiliated epistemological fields.
- Theoretical interventions are taught through a huge range of ethnographies, which transports students to the life-worlds of people in different parts of the globe.

## Department of Performing Arts

- Teaches students to focus on research and critical understanding of performance as dance, theatre and music, within their many interlocking and interfacing worlds.
- Through this course students get introduced to the pedagogy of ‘performance’ which would explore the complex ways in which performances interact with and create different kinds of social practices, and help to integrate society in meaningful ways.
- The course aims to foster performance-making process by exposing the students to various traditional and contemporary forms of performing art through observation, analysis and critical writing.
- The curriculum is designed to encourage students to extend their knowledge of performing arts to connect to interdisciplinary dimensions of history, cultural policy, digital media, and films.

## Department of Life Sciences

- The syllabus has been entirely re-structured to include research modules at the postgraduate level. Students of the department graduate with a holistic idea about the entire gamut of disciplines comprising life sciences - from geo microbiology to biophysics and bioinformatics, from developmental biology to neurosciences, for example. This interdisciplinary approach has been tremendously successful, with a significant number of students qualifying for Ph.D. scholarships.
- The research focus of the faculty is also very diverse, and covers a wide range of areas from cell and molecular biology, virology, cancer biology, plant biotechnology, developmental biology, microbiology, biochemistry, computational biology, structural biology, environmental biology and ecology. Several faculty members also hold prestigious national fellowships and research grants. There are also extensive intradepartmental, interdepartmental, as well as international collaborations, which allows for a truly interdisciplinary research environment.

## Department of Chemistry

The course provides the opportunity for the undergraduate and postgraduate students to gain a thorough fundamental knowledge in all fields of chemistry. The lecture courses range from the general areas of inorganic, organic, and physical chemistry to many specialized courses including analytical, nuclear, quantum, polymer chemistry, medicinal chemistry, bio-inorganic chemistry, spectroscopy and biophysical chemistry and chemical biology. Students obtain laboratory experience in inorganic and organic synthesis, analytical methods, physico-chemical measurements, spectroscopy, and quantum mechanical calculations. The department provides an excellent intellectual environment. Faculty members are always available to discuss chemistry, science, career opportunities, and beyond. The department boasts of a rich seminar library. The department provides opportunities for the undergraduate and postgraduate students to carry out summer research projects for the students of this as well as other University. The department offers GedEd programme for the students from different fields across disciplines. The department arranges special classes, if and when required. The department runs Ph.D. programme in all areas of chemistry.

## Department of Economics

- Apart from regular teaching learning activities (comprising of class lectures, lab sessions, project work, and tutorials), the department also holds special lectures, short courses and workshops frequently, where leading economists from India and abroad interact with the students.
- Students of the Fifth Semester may attend one semester of their course work in Sciences-Po, Paris or Groningen University under Student Exchange Programmes.
- The course has been designed as an integrated UG-PG programme, with exit point after the third year (completion of UG teaching courses).
- At this point, a group of students join leading academic institutes in India, like Indian Statistical Institutes, Delhi School of Economics, Jawaharlal Nehru University, Indira Gandhi Institute of Development Research, different IIMs, and others.
- Another group of students successfully seek admission in foreign Universities like London School of Economics, Oxford University, Warwick University, University College of London, SOAS University of London, and others.
- A third group of students opt to continue in our University and enrol in the Masters of Applied Economics programme.
- After completion of the PG programme, the majority of the students are recruited by reputed data analytics and financial services companies. Several of our students have been admitted to Ph.D. programmes in universities like MIT, Southern Methodist University, New York State University, Washington University at St. Louis, University at Albany SUNY, University of Minnesota, Purdue University, West Virginia University, University of Illinois at Urbana–Champaign, University of British Columbia, University of Florida, etc.
- The Department is offering a PhD programme since 2019, with a 16 credit course work. This should provide another avenue for PG students of our University in the future. A weekly Faculty Colloquium series has been introduced for the Research Scholars, where faculty from India and abroad lecture and interact with the Scholars. In addition, a theme-based Summer School is also planned.
- The Department also holds an international seminar once every two years (funded under Nirmal Kanti Majumdar Endowment fund) where scholars present their research output.
- The Pasupati Sadhu Khan Endowment fund is also utilised to hold Entrepreneurship Development Workshops annually. This has encouraged some students to take up entrepreneurial activities.

## Department of Geography

### **Outcomes of Under-Graduate Courses:**

- For understanding of the earth surface and near surface environment.
- For understanding of changing pattern of human behavior that shapes the landscape.
- To develop aptitude in basic sciences and activity based process study.
- To develop skills in geospatial techniques.
- To impart knowledge to students about the core content of Geography - Geomorphology, Climatology, Hydrology, Oceanography, Soil, Biogeography, Social and Cultural Geography.
- To impart training for collecting data from field.
- To develop skills in data handling, mapping and presentation.
- To foster student seminar programmes for improving academic presentation skills.

### **Outcomes of Post-Graduate Courses:**

- To impart specialized training in Channel Hydraulics and Form, Landscape and Water Management, Tourism Management and Community Development, Planning and Designing of Urban and Rural Space, Assessing and Managing Human Interactions with the Natural Environment.
- To develop skills in modeling Earth System Dynamics and Simulation based experiments.
- To develop skills in Geospatial Technologies with applications to problems in the social, physical and environmental sciences.
- To impart training for conducting field works.
- To develop skills for precision data collection.
- To develop skills for application of Numerical Techniques in research.
- To impart knowledge and develop skills for preparing dissertation thesis.
- To guide students to master presentation skills for delivering oral presentations in seminars and workshops.

## Department of Geology

- The UG-PG curriculum was designed in a fashion so that the student gets both the depth and breadth of the subject.
- Ample space has been provided for project work, assignments and seminars.
- Special emphasis has been given on field training of students as Geology is a practical application based subject.
- The subjects are arranged in different compulsory and elective modules. Compulsory modules cover the fundamental branches while the elective modules encompass modern practices and state-of-the-art knowledge in emerging branches of Earth Sciences and their applications.
- Students are encouraged to do summer training and related project works in other institutes during semester breaks.
- Basics of research and applied works, especially pertaining to geological investigations, have been introduced in the postgraduate level curriculum so that this course can act as the first step towards higher studies as well as in professional life.
- Students at post-graduate level have to undertake a compulsory project work in industry during inter-semester breaks.
- Students also have to undertake a dissertation work at post-graduate level where they are introduced to independent real life problem solving from a chosen field of research or a geological terrain.

## Department of Mathematics

### UG Mathematics (Major) Programme Outcomes:

- Students are able to construct and develop logical arguments for mathematical proofs.
- Students acquire good knowledge to solve problems in advance areas of Mathematics like Analysis, Algebra, Geometry, Differential Equations, Number Theory etc.
- Students are able to apply mathematical ideas to solve real world problems. They also go for internships during the summer and puja breaks in different research institutes to sharpen their skills.
- Many students are placed at the leading institutes of the country like TIFR, IISc, IITs, ISI, CMI, IMSc as well as abroad for a Master's Programme or Integrated PhD Programme in Mathematics. For this purpose, some special classes and mock interviews are arranged in the department to facilitate them to appear in those examinations.
- Students develop skills in Programming Languages like C++, MATLAB, which helps them to be fit for applying for both industry and research.

### PG Mathematics Programme Outcomes:

- Students are able to construct and develop logical arguments for mathematical proofs.
- Students acquire good knowledge to solve problems in advance areas of Mathematics like Analysis, Algebra, Topology, Differential Geometry, Differential Equations & Dynamical Systems, Number Theory & Cryptology, Graph Theory etc.
- Students are able to apply mathematical ideas to solve real world problems.
- Many students crack Joint CSIR UGC NET, GATE, NBHM and other Entrance examinations for research fellowship in order to pursue PhD in Mathematics at the leading institutes of the country like TIFR, IISc, IITs, ISI, CMI, IMSc as well as abroad. For this purpose, some special classes and mock interviews are arranged in the department to facilitate them to appear in those examinations.
- Students develop skills in Programming Languages like C++, MATLAB as well as in Data Science, which helps them to be fit for applying for both industry and research.

## Department of Physics

This is one of the earliest and best-known physics departments in the country and many students and teachers of this department have attained universal fame at different era. The Department has been able to maintain a balance of research and teaching all the way. Both UG and PG courses in Physics are offered with wide choice of elective papers. Independent Ph.D. coursework is conducted. Having the background of good laboratories and infrastructure, an interactive teaching-learning methodology is implemented with continuous evaluation, use of audio-visual system, summer internship, guided visit to renowned laboratories and project work in both UG and PG levels. Students achieve success in competitive examinations, such as NET, JEST and JAM and are placed for PhD/Intg. Ph.D. at reputed institutions in India and abroad. Most of the faculty members have funded projects and wide-ranging research interests and each year a significant number of research publications at reputed international journals are produced from this department. In a number of cases, the PG students also have contributed to research publications out of their guided projects.

## Department of Statistics

### **Salient features of the curriculum**

#### Undergraduate Programme :

- Categorical Data Analysis : prepares students for analysis of discrete data
- Markov Chain : advanced course on probability theory leading to Stochastic Processes
- Real Analysis : as a part of foundation course of Mathematical Statistics
- Advanced Linear Algebra : covers the advanced part suitable for contemporary Statistical Methods
- Advanced Statistical Inference : advanced topics in Mathematical Statistics that helps students to tackle real-life inferential problems
- Computer Applications in Statistics : Skill enhancement courses covering MS-Excel, C-Language, R-package, SQL – helps students to tackle large databases
- Further the CBCS curriculum contains Elective Papers on contemporary Statistical methodologies including
  - Circular Statistics
  - Econometrics
  - Operations Research
  - Stochastic Processes
  - Advanced Statistical methods covering model selection, resampling, etc.
  - Advanced Mathematical Analysis
  - Project work

#### Master's Programme : Contemporary courses

- Applied Multivariate Analysis : advanced data-analytic tools for multivariate data
- Advanced Regression Analysis : advanced tools for predictive modeling
- Statistical Computing : covers all contemporary applications of Statistics using MS-Excel, C-Language and Advanced computing with R-package
- Clinical Trials and Survival Analysis : the core part of Bio-Statistics with applications in industry
- Data Mining : prepares students in Data Science paradigm
- Astro-statistics : research-based interdisciplinary course
- Statistics in Finance : contemporary applications in financial sectors
- High-dimensional Inference : Research based course on current advanced topics
- Academic Project work / Dissertation

These courses prepare the students towards research as well as to current jobs in different sectors requiring data-based decisions.