

LEARNING OUTCOME OF THE UG & PG COURSES

➤ **Bengali Department**

The Department of Bengali runs Undergraduate Courses in Bengali under the Choice-Based Credit System (CBCS). Under the Choice-Based Credit System (CBCS) the department offers Core Courses (CC), General Elective Courses (GE), Ability Enhancement Compulsory Course (AECC), Discipline Specific Elective Courses (DSE) and Language Core Courses (LCC). By taking these courses, students improve their apprehension of the grammar and stylistics of the Bengali language and also become much more cognizant of Bengali culture, history, and literature. The syllabus also offers Skill Enhancement Courses which prepares the students for professional fields. Students acquire the knowledge and skills which serve them in the near future in careers related to script writing, academic research, translation, job interviews, teaching, theatre, journalism, and other various sectors of media and entertainment.

➤ **Botany Department**

The department of Botany offers 3 years Undergraduate Honors courses and 2 years Postgraduate courses under CBCS system affiliated to West Bengal State University, Barasat. The discipline of Botany has been transforming itself rapidly through the past decades due to interdisciplinary and technological inputs. This has brought about a paradigm shift in our knowledge and understanding of the diversity of plant and microbe life as well as their interactions. New niche areas in plant developmental biology, molecular ecology, statistical genetics, transcriptomics of stress interactions of plants, next gen sequencing, predictive models of decision support systems combining large data as well as artificial intelligence and population genetics studies in preventing disease losses, structural modeling and phylogeny constructions through bioinformatics have been created due to cutting edge research in these fields which are now all a part of the Plant sciences.

Laboratory courses aims at making the student familiar with the diversity of algae, bryophytes, fungi, oomycetes, bacteria and viruses in various habitats, their identification using both morphological and modern molecular techniques including use of phylogenetic software/(s). Practical courses also help to understand the importance of diseases caused by representative pathogens, the molecular mechanism of host-pathogen interaction and disease resistance, and its translational use for the development of disease resistant plants through genetic engineering. The students will also be acquainted with various commonly used molecular biology techniques in plant

sciences. They will have an advanced understanding of the modern concept of gene, methods to study them along with their model systems, their changes in frequency and structure as well as its regulation. Students will also attain the basic physiological and biochemical knowledge of plant systems that will help them build up their further concepts.

Therefore, the objective of the course program is to produce students with diverse scientific knowledge needed for the biology. We expect the students will admire all these fascinating areas of Botany in both UG and PG courses and will benefit from this study. These exposures will help them for doing higher studies in research field with independent thinking ability.

➤ **Education Department**

The Department runs Undergraduate and Postgraduate Courses in Education since 2008 and 2017 respectively under the Choice-Based Credit System. It helps to develop critical and analytical thinking and in-depth knowledge through different specialized subject areas in Education. The discipline instils moral values in students making them sensitive about social issues including moral obligations and human rights. The curriculum encourages social knowledge and an awareness about various social and environmental issues such as gender sensitization, religious harmony, national integration, international understanding and values of world citizenship as well care and respect for all forms of life. The curriculum also enables students to link the knowledge of Educational Technology and their application in teaching-learning process. It also facilitates to realize various concepts about Child psychology, Research and the importance of Inclusive Education. Through community outreach programmes included in the curriculum the students learn the qualities of leadership, resilience, empathy, service-mindedness, socio- cultural skills, ethics, aesthetics, and essential humanitarian values. Finally, the students acquire the basic competencies to get employment in various fields, like Higher Secondary Schools, College/ Universities and in Private and Govt. sectors as Teacher, Assistant professor, Education Officer, School Inspector, Expert Counsellors etc.

➤ **English Department**

During their studies in the department, students are introduced to the choicest pieces of English literature, and are trained in the art of close reading, holding them in good stead for future academic pursuits. Literary texts are analysed in the class with

particular attention to their use of language, thus enabling the students to observe the writing skills of the best authors and then implement those to their own use of the language. Besides, the teachers also try to impart in the students the humane lessons to be derived from the greatest stories of the world — that of empathy a deep understanding based on the knowledge of history and society.

The department, we believe, does its best to make its students not only well read, but well ready for the world they are about to meet.

➤ **Geography Department**

The department runs undergraduate courses in Geography under the choice based credit system(CBCS) teaching a syllabi mandated by the UGC.The new system divides the curriculum in core courses for the duration of the semesters running six months each,thus making the process of transferring credits (grades) easier for a student.Since the semester system has widespread international acceptance it also facilitates the recognition of oacademic credits everywhere.At the undergraduate level the department offers a bouquet of core courses and general elective courses. The upgraded syllabi of the 6.A courses in Geography,taught by the department.The subject offers the learning of both theory and practical aspects of Geographical studies.Students are taught the application of GIS and remote sensing, aerial photograph,geological maps, and weather map interpretation amd field survey.All these are very useful in environment management and regional planning. There are multi-farious job oppurtunities of the students of geography like teaching at various levels,Agriculture and meteorological department,water commission,soil survey,survey of India,Geological survey of India and so on.

➤ **History Department**

Being a popular branch of Social Science, History covers a wide range of human activities of the past. Why do we know the past? We need to know the past and we should study history because it reveals the past for understanding the present and to have an idea about the future. Indeed History, as observed by E.H.Carr, is "an unending dialogue between the present and the past".Since historical events like human evolutions, migrations, social formations,wars, military alliances, creative urge of the people etc. can't be experimented in laboratories, a historian has to reconstruct the past through his reflective ability which forms an image of his mind through close discussion or dialogue with the subject.This explains why we should study history. Historian David McClough has aptly said, " we need history as much we need bread or water or love".As

per the CBCS syllabi of the West Bengal State University, Barasat we offer both the Core and Generic Courses to all undergraduate students of our college. It covers vast history of human evolutions, social formations, material culture and religions and artistic activities of the peoples of South Asia, South- east Asia, East Asia, Europe and America. Unfolding the history and civilization of different countries our students get to know the ups and downs of different dynasties, achievements of different rulers as well as the life and culture of the common people. From this our students can frame a broad perspective about a period and identity historical trends as well. Through our teaching they witness how India experience ups and downs in her journey. By developing their mental faculty they can understand that it is not merely an account of accidental happenings of wars, invasions or migrations, it is essentially " a development of foundational ideas constituting a creative matrix" Our students get motivation from the creative urge of our people displayed in art, architecture and sculptures where every emotion of the soul is expressed with thrilling intensity. Building their solid base here, our students pursue higher studies and research in different universities and institutions and establish themselves as teachers in schools, colleges and in different institutions of both public and private sectors.

➤ **Political Science Department**

The Department of Political Science, Bidhannagar College seeks to offer comprehensive knowledge of Political Science through dynamic teaching methods. Teachers of the Department have mainly focused on reaching out to the students by all possible means and disseminating knowledge in a simple and structured way for better understanding of the subject. The existing curriculum under the CBCS, includes some really dynamic and complex issues ranging from different aspects of governance, public policy, recent shifts in global politics, international political economy, human security etc. It also includes comparative case studies of human rights embracing uncharted and unexplored areas of the same, and comparative politics with issues as complex as comparative analysis of political economy of different countries, that require dynamic approach and the use of advanced technology to make learning an easier process. Students find the interactive classes with the teachers really engaging. The power point presentations prepared by the teachers on the most difficult areas of the syllabus will keep them informed about the recent developments in the arena of national and global politics. Extra classes organised by the department seem to have been beneficial for the student confronting difficulties. Study materials given to the students are also explained as and when needed in order to simplify the learning process. Apart from the conventional teaching programmes like mock parliaments, debate competitions, have

also been organised in order to give students a much needed exposure to the vast realm of politics and make learning more effective.

➤ **Philosophy Department**

○ Philosophy deals in a clear and precise manner with the real world, its complex social and material nature and our place in it. Philosophy is an activity of attempting to understand the world in all its aspects. It is a rational attempt to look at the world as a whole as discussed in Indian and Western tradition. The department is also committed towards inculcating awareness about man-nature relationships.

○ To study Philosophy is to see the connection between ideas and to explicate that connection in a reasoned and logical way. To make such a pursuit more systematic, academic Philosophy is traditionally divided into major areas to study. Those who study Philosophy are perpetually engaged in asking, answering and arguing for their answers. The discipline also instils moral values amidst students making them aware about social issues including moral obligations and rights as well.

○ Department of Philosophy has started its journey from the beginning of the foundation of Bidhannagar College on June 25th, 1984. Though the department was initially affiliated to the University of Calcutta, since 2008 it has been affiliated to West Bengal State University. The department sincerely follows the university curriculum. The curriculum encourages social awareness, make them aware about social problems.

○ The goal of the department is to present Philosophy to newcomers as a living discipline with historical roots. To ensure the bright future, each and every student is motivated by the teachers. We do learn much from doing Philosophy. It liberates us from narrow minded conventional thinking and opens our minds to new possibilities.

➤ **Physics Department**

Physics is a wonderful subject in Science, demanding, perhaps, the highest intellectual ability from a human being, to comprehend and understand. It tries to envisage, understand and explain all that is happening in nature in terms of the basic interactions, demanding that the total **mass + energy** in the universe to remain constant. It strives to reveal the ultimate truth and beauty in nature.

Possessed with the objective to provide quality education to the students through teaching-learning process, the undergraduate Department of Physics of this College tries to maintain a very friendly and healthy atmosphere. Each teacher acts as a mentor to each and every student, and interacts freely with him/her inside/outside class-rooms and laboratories, whenever such scope comes. For a student, the outcome of spending three years here under the CBCS Curriculum of the WBSU may be broadly categorized as follows:

Cognitive, intellectual and scientific skill development:

It leads to gradual development of an analytical mind to understand the fundamental scientific principles, instead of mere memorizing of discrete facts. Association with this subject also results in development of independent and rational thinking ability to skilfully interpret theory and measurements. Expertise in the application of advanced mathematical techniques is also a natural outcome.

Preparation for post-graduation level studies and various competitive examinations:

The students are prepared not only for graduate level examinations but also for M.Sc. entrance examinations of different universities. They are guided for other prestigious national level examinations like JAM, JEST, GATE for entrance to M.Sc and integrated Masters & Ph.D. programmes in IITs, IISERs and other eminent institutions in the country in the field of Physics, allied science and engineering. They are helped to work out problems and appear in mock tests conducted by professional bodies.

➤ **Microbiology Department**

Microbiology was introduced in the UG curriculum of the University of Calcutta in the year 2002 and PG curriculum was introduced in 2004 under the leadership of Dr. Anup Kumar Guin, Associate Professor in Bidhannagar College. Basically it is a job-oriented course and has a high demand of microbiologists in a wide arena of industries spanning Biotechnology, dairy products, processed food and beverages, health, diagnostics, pharmaceuticals, animal husbandry as well as other agro-industrial products. In recent covid pandemic situation the subject got extreme importance as the Microbiologists of the world are the front worries to combat the situation. However, the trend started to shift as most of the students graduating from this discipline chose higher education as their career profiler and preferred taking competitive examinations like NET, GATE to enroll for Ph.D. programmes in research institutions across the country and abroad. The syllabus taught under the UG course has been moulded quite a few numbers of times accordingly to serve this dual objective of a job centric education as well as to cater the

needs of an aspiring academician. It has been constituted with amalgamation from the four basic sciences - chemistry, biology, physics and mathematics and any student enrolling for the course is expected to live up to this interdisciplinary nature of the subject. We, at Bidhannagar College, strive to empower our students with the dynamism to choose their career path wisely and decide according to their wish and capability since they come from households of diverse socio-economic backgrounds. At present our department has well balanced subject orientation with eight permanent faculties, one State Aided Contractual faculty and some Guest faculties as per subject requirement. A student graduating from this department by default gets enrolled at a post-graduation course either in Microbiology itself or in a similar or related subject. However, having said that, the student also has to put his/her part to secure a PG seat at a reputed place. Over the last few years, students with above par merit are also getting admitted in integrated Ph.D. programmes being offered by reputed research Institutes like IISC (Bangalore), NCBS/TIFR (Bangalore/Mumbai), IACS (Kolkata), Bose Institute (Kolkata) etc. Thereafter, most of them are qualifying National Entrance examinations and opting for Ph.D. programmes and taking up professional careers either as academicians or scientists. At present several numbers of students are engaged in Post Doctoral Research in abroad including America, Canada, Japan and at different European Union countries. Students who are not able to meet the standards of higher merit, are also absorbed occasionally in smaller biotech and pharmaceutical factories after their graduation or in more lucrative places such as Food Corporation of India, Govt. of India, Cipla, Cadita health care, Glaxo Smith Kline, Tata Water purifier after their post-graduation. Choice Based Credit System (CBCS- Semester system) as per UGC guideline was introduced since 2018 onwards in UG and in 2019 in PG. In the present syllabus introduction of a few skills based learning courses to make it more job centered. Besides conventional education, the faculty members also put their very best to engage the students time to time in various co-curricular activities like participation in workshops and hands-on programmes, seminars, presentations, objective oriented excursions such as industry and institute visits and short term research projects all of which add to their credentials at higher rungs of their academic hierarchy. Several major and minor Research projects funded by UGC, CSIR, WBDST, Ministry of Environment, Govt. of WB, Ministry of Food Processing, Govt. of India etc were awarded to the faculties of our department. The total cumulative amount was near about one crore rupees in last ten years. The project helped to enhance the infrastructure of our laboratory. Apart from students practical lab a well equipped Research lab was also prepared for Ph.D. students. Two students awarded Ph.D. from our department so far. DST-FIST Programme was awarded to our college by DST, Govt. of India in 2012 and Microbiology Department was one of the major components of that programme. Over

the years, students of all batches have fostered in the homely ambience of the Department where faculties have taken care of their interpersonal needs and tried to ensure that they reach their fullest academic potential.

Statistics Department

- Decision-making and that too under uncertainty is the ultimate requirement of the present civilization – be it in governance, commerce, society, or in scientific research.
- As Information Technology has brought about a revolutionary change in the quantum of knowledge available to the present-day scientific community, the necessity of trimming down the knowledge, using statistical tools and techniques, has grown further.
- To be precise, knowledge available in the form of data is always contaminated with various spurious information and confounded with different factors, not relevant to the context of interest. As a result, while making decisions using this knowledge we always become vulnerable to the elements of uncertainty. The job of a statistician is to identify the various sources of uncertainty and to eliminate them, as far as practicable, using tools and techniques, available to him. When this available bouquet of tools and techniques appears to be insufficient or inadequate to handle the uncertain factors, confounded with the information of interest, a necessity for building up new statistical models, leading to further development of the theory in Statistics arises.
- Besides this kind of development, judicious use of information from various sources, available at different layers, requires newer techniques to be developed taking advantage of machine learning to give impetus to algorithm-based inference. This particular field of research, though called in a new name - 'The Data Science', over an expanded horizon of knowledge, is nothing new and is embedded very much within the basic knowledge of Statistics. In fact, we can safely say that 'Statistics is the gateway of Data Science' and it is being explored by the present-day statisticians in a more collaborative environment cutting across the border of different scientific disciplines.
- Keeping in mind the present need of the scientific community in particular and the larger society in general, the syllabus of Statistics has been revised and

updated thoroughly in tune with the recommendation of the University Grants Commission(UGC)for the newly introduced Choice Based Credit System(CBCS). Besides knowledge gathered from class lecturing, our students are given compulsory practical training in handling and processing of both primary and secondary data, sometimes going beyond the periphery of their domain knowledge. With the training and temperament, a student of Statistics of Bidhannagar College, after having completed her/his UG-Hons. The programme is expected to

- Render service to the planning and development programme in different government sectors as a responsible officer of Indian Statistical Service and also as an officer of the State Bureau of Applied Economics & Statistics (BAE&S), amongst other government establishments.
- Contribute substantially in developing the subject through active participation in different training and research programmes in Statistics, conducted by premier institutions of higher learning in India and abroad.
- Give service to the Giant Corporates and MNCs in the field of Finance, IT, and Pharmaceutical Industries.
- Apart from developing professional skills, students are encouraged to be part of different social and cultural activities of the college through participation in the NSS (National Social Scheme) programme and the Annual Cultural Programme of the college. The talent and quality of leadership, already built in the personality of a student are thus nurtured and flourished. So to conclude this writing on 'Learning – Outcome' it is worth mentioning that our students of Statistics are trained not only for giving service to the nation with their acquired knowledge and skill in the field of Statistics but a least some of them are expected emerge as a leader to guide the society and the nation on the right path in days to come.

