Department of Bioinformatics.

Shaheed Benazir Bhutto Women University. Peshawar

Welcome to Bioinformatics at Shaheed Benazir Bhutto Women University, Peshawar. The Department of Bioinformatics at SBBWU campus came into existence in 2007. Since its establishment it is struggling hard to rise to excellence. We offer exciting teaching, research, and professional development opportunities to meet the challenges in many fast-growing industries in diverse areas of Biological and Biomedical sciences. Bioinformatics is an interdisciplinary science with a focus on data management and interpretation for complex biological phenomena that are analyzed and visualized using computer programming, mathematical modeling and numerical methodologies statistical Techniques. The aims and objectives of Bioinformatics department are based on the global vision currently we are offering excellence in BS-Bioinformatics. in medical, biotechnology, and pharmaceutical industries. Students who are interested in both biology and computer science may consider the study of bioinformatics.

BS-BIOINFORMATICS:

The Bachelor of Science in Bioinformatics will train students in an exciting interdisciplinary field that mixes all of the STEM (science, technology, engineering, and math) fields. The bioinformatics program at SBBWU will prepare students for Higher Studies, Research or a career in the pharmaceutical, agricultural, public health or biotechnology industries. With the advancement of bioinformatics technology and Recent developments in medicine, molecular biology, and computer science, mathematics, statistics, and chemistry have produced massive databases that require people to decipher and interpret information embedded in complex biological systems and who understand the language and questions of those fields and also understand the statistical and algorithmic knowledge to access the information in these databases. Bioinformatics students will complete core sequences in mathematics, Biological sciences, and computer science and then integrate this information in bioinformatics courses. On completing this program, students will have a detailed knowledge of Mathematics, statistics, computer science, biochemistry, molecular Biology and genetics and be able to design and conduct computational experiments in addition to analyzing and interpreting data.BS-Bioinformatics Program has been designed inline with the HEC guidelines and the Global research trends, so that our students do not feel any difficulty while competing in local and global market. This Bachelor program in Bioinformatics will provide in-depth knowledge of a critical field.

VISION:

The Department of Bioinformatics wants to be a leading department of the country to provide educational background that blends biology with computer science and mathematics to develop bioinformatics professionals & researchers with interdisciplinary approaches who are able to meet international challenges & to explore different areas of life sciences.

MISSION:

The mission of the Department of Bioinformatics is to apply our knowledge and expertise to the cost effective development, implementation, support and improvement of the Bioinformatics infrastructure to meet the present and future requirements of life sciences and to educate and produce graduate students in the field of bioinformatics and computational biology who are skilled and able to integrate research and education on the use of information technologies in molecular biology by developing & using bio-informatics tools.

PROGRAM OBJECTIVES :

1. To learn the scientific concepts and applications of computational methods in biological sciences.
2. To adopt practical approaches to information technology and computer applications in molecular biology and biotechnology with focus on major issues concerning representation and analysis of bimolecular sequences and structural information.
3. To learn investigative methods for research in biosciences with the help of tools of Bioinformatics.
4. To provide knowledge on development and application of computer software tools of bioinformatics.

CURRICULUM BS-BIOINFORMATICS:

This bioinformatics program consists of a core curriculum that provides the basics of biology, computer science and statistics, as well as an introduction to the field of bioinformatics. The bachelor's degree in bioinformatics at SBBWU requires a total of 136 credit hours of courses in biological Sciences, biochemistry, computer science, mathematics, and statistics. The curriculum is designed by keeping in view the modern requirements and the interdisciplinary nature, the main focus is not only on biological research, a in-depth understanding of divisive concepts such as database, programming and algorithms are also developed. Furthermore, to acquire hands on experience, most of the Bioinformatics courses are supported by projects and lab work.

In the final year of their degree students are placed in relevant industry as internees to acquire real life problem-solving skills and gain exposure to the latest technologies in applications. The students are also required to complete a final year project based on research. The project is expected to have some value to the organization or industry. A student completes this BS degree in Four years by taking a combination of bioinformatics core courses.

FEATURES:

Department of Bioinformatics has engaged experienced and qualified faculty and developed quality infrastructure. Department has class rooms equipped with modern teaching equipment's, well-furnished and well equipped labs both for teaching and practical work. The Department has equipped Biological and Computer Labs.

FACULTY:

The interdisciplinary nature of bioinformatics requires collaboration between several existing departments including Biological Sciences, Physical Sciences, Mathematics, and Computer Science. Currently, the Department of Bioinformatics has ten (10) well qualified full-time faculty members from the field of Biological Sciences, Computer Science, mathematics and statistics. The breadth of the department faculty is adequate to cover the biology and Bioinformatics core curriculum. The math, Biochemistry, and computer science core courses are all already taught by qualified faculty. Full-time faculty are actively involved in research and professional organizations.

1. Dr. Farhat Amin Received HEC University Best Teacher Award (2009). Associate Professor & Chairperson.
2. Dr. Nousheen BiBi Received SBBWU Best University Teacher Award 2022.Assistant Professor.
3.Dr.Aishma Khattak. Assistant Professor.
4. Dr. Ambreen Shahnaz. Lecturer
5. Ms. Asma Bibi. Lecturer
6. Ms. Sidra Qureshi. Lecturer.
7. Ms. Asma Jamil
8. Ms. Aisha Ghani

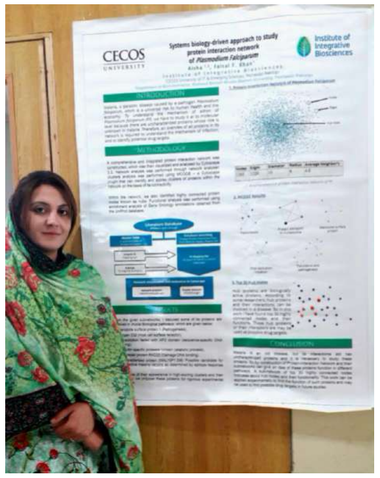
RESEARCH & INTERNSHIP:

Bioinformatics is an interdisciplinary science that offers unique opportunities for individuals with diverse backgrounds to learn and collaborate with others. There is an increasing demand for well-trained bioinformatics professionals capable of developing computational tools integrated with experimentation for solving complex biological problems. Before graduation, all students in this program are required to gain practical working experience through an internship at an academic, industrial, or government institution. With options for writing a thesis, conducting research projects, or training in management and entrepreneurship as part of the curriculum, students completing the program will function as pivotal members of an interdisciplinary
Our research areas are:

- Computational Modeling and Protein-Ligand Interactions.
- Computational Molecular Docking and Drug Designing.
- Swarm Intelligence & Mathematical Modeling.
- Database & Software Designing.
- Data mining.
- Protein-Protein Interactions.

Extra-curricular activities

In addition to coursework, students attend the weekly bioinformatics colloquium series, with research seminars and professional training workshops, and complete an internship at a research institution or industry. Students also have opportunities to present their works at national and international conferences and publish research findings in scientific journals.



Accreditation of Bio Informatics Program of Shaheed Benazir Bhutto Women University:

The Bio-Informatics BS Program of the Shaheed Benazir Bhutto Women University has been awarded category X by the National Computing Education Accreditation Council (NCEAC). It is a matter of great honor for the Department of Bio-Informatics since it was the first time that the program applied for accreditation and was placed in the second highest category in ranking. The NCEAC report notes that, the Shaheed Benazir Bhutto Women University is an exclusive university for women where parents send their daughters without any reservation. It further underlines that, the discipline of Bio-Informatics is new to the academia in Pakistan and SBBWU has pioneered in the field by being the first university in KPK introducing this program. The report also mentions that the faculty of the department is young and enthusiastic in disseminating knowledge to students and the university is managing its operation despite lack of funding and government support.