**Basic Molecular Biology (C) (BIC.226)**

**Overall aims of the Course:**

This course enables students to study innovative molecular methods devoted for the understanding of molecular biology basis. We will explore how genetic information is regulated in eukaryotes, including replication, transcription and translation, and molecular aspects of the cloning, proteomics and bioinformatics. Our practical sessions, along with other guided and online learning sessions will introduce students to widely applied and advanced tools that are essential for modern biochemistry and molecular biology. By the end of this course, you will be equipped with foundational skills and knowledge to support your studies in the medical and life sciences.

**Course contents:**

* Nucleoproteins and Nucleic Acids
* Extraction of DNA
* DNA replication
* Extraction of RNA
* Transcription
* Quality and quantity of DNA and RNA
* Translation
* Gel Electrophoresis for DNA
* Gene regulation
* Gel Electrophoresis for RNA
* Gene mutations
* Blotting Techniques
* Cloning vectors
* Cloning techniques
* Polymerase Chain Reaction (PCR)
* PCR technique
* DNA Manipulation Enzymes
* Gene cloning
* Proteomics
* Bioinformatics