RIT | Rochester Institute of Technology of Dubai

Courses in Bioinformatics Analysis Minor

1. BIOL 130 **Introduction to Bioinformatics**	This course explores core topics in bioinformatics, introducing the essential tools and resources used by the discipline while providing direct, hands-on experience with the common user environment.
2. BIOG 140 **Cell and Molecular Biology for Engineers I**	The first in a two-course sequence, this module introduces the molecular and cellular basis of life with an emphasis on human physiology integration. Topics begin with biological macromolecule chemistry and move outward from the nucleus, covering DNA replication, inheritance, RNA biology, gene expression, protein synthesis, and enzyme kinetics.
3. BIOL 231 **Introduction to Bioinformatics Programming**	Focusing on computer programming as a tool for modelling and data analysis in the life sciences, this course teaches programming fundamentals applied to real biological problems, emphasizing problem-decomposition, syntax, and proper data structure selection.
4. BIOL 331 **Bioinformatics Languages**	This course focuses on languages commonly used in bioinformatics and data science. Students investigate multi-language processing for sequence and "-omics" data, pipeline building, data management, and tool integration through live-code demonstrations, assisted coding, and a final student-designed project.
5. BIOL 470 **Computational Statistics and Data Science Methods for Biology**	Reviewing univariate statistics while introducing multivariate methods and machine learning, this course addresses mathematical modelling and computer simulation. Students apply methods using Python, R, or Julia, alongside specialized software like MEGA, MS Excel, and NetLogo.

*The plan code for the Bioinformatics Analysis Minor is **BIOANA-MN.***