

## **Bachelor of Science (BSC)**

**Course Overview Institution: St. Anne's First Grade College for Women**

**Program Duration: 3 Years (6 Semesters)**

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### **Semester 3**

#### **Organic Chemistry**

Organic Chemistry is the branch of chemistry that studies carbon-containing compounds and their reactions. It focuses on the structure, properties, and transformations of organic molecules, including hydrocarbons, alcohols, acids, and polymers. Understanding organic chemistry is essential for fields like biochemistry, medicine, pharmaceuticals, and materials science. It explains how organic compounds are synthesized and how they react, making it crucial in both natural and industrial processes.

#### **Modern Physics**

Modern Physics deals with advanced concepts that emerged in the 20th century, focusing on the behavior of matter and energy at atomic and subatomic levels. It includes theories like relativity, quantum mechanics, particle physics, and nuclear physics. Unlike classical physics, modern physics challenges our intuition about space, time, and reality, providing insights into phenomena like wave-particle duality and the uncertainty principle. It forms the basis for cutting-edge technologies such as lasers, semiconductors, and nuclear reactors.

#### **Differential Equations**

Differential Equations are mathematical equations that describe the relationship between a function and its derivatives. They are used to model dynamic systems and changes in physical, biological, or economic contexts. Differential equations can be ordinary (ODEs) or partial (PDEs), depending on whether they involve one or multiple variables. Mastering this topic is essential for solving real-world problems, from predicting population growth to analyzing electrical circuits and fluid dynamics.

## **General Biology**

General Biology is the comprehensive study of living organisms and life processes. It covers fundamental topics such as cell biology, genetics, evolution, ecology, and physiology. By exploring the diversity of life, from microorganisms to complex ecosystems, general biology provides a foundational understanding of how organisms grow, reproduce, and interact with their environment. This knowledge is essential for fields like medicine, agriculture, biotechnology, and environmental science.