# GRADE 12 SCIENCE
# COURSE DESCRIPTIONS

**Biology, University** **SBI4U**
This course provides students with the opportunity for in-depth study of the concepts and processes that occur in biological systems. Students will study theory and conduct investigations in the areas of biochemistry, metabolic processes, molecular genetics, homeostasis, and population dynamics. Emphasis will be placed on the achievement of detailed knowledge and the refinement of skills needed for further study in various branches of the life sciences and related fields.
**Prerequisite: SBI3U**

**Chemistry, University SCH4U**
This course enables students to deepen their understanding of chemistry through the study of organic chemistry, the structure and properties of matter, energy changes and rates of reaction, equilibrium in chemical systems, and electrochemistry. Students will further develop their problem-solving and investigation skills as they investigate chemical processes, and will refine their ability to communicate scientific information. Emphasis will be placed on the importance of chemistry in everyday life and on evaluating the impact of chemical technology on the environment.
**Prerequisite: SCH3U**

**Chemistry, College SCH4C**
This course introduces students to the concepts that form the basis of modern chemistry. Students will study qualitative analysis, quantitative relationships in chemical reactions, organic chemistry and electrochemistry, and chemistry as it relates to the quality of the environment. Students will employ a variety of laboratory techniques, develop skills in data collection and scientific analysis, and communicate scientific information using appropriate terminology. Emphasis will be placed on the role of chemistry in everyday life and in the development of new technologies and products.
**Prerequisite: SNC2D or SNC2P**

**Physics, University SPH4U**
This course enables students to deepen their understanding of the concepts and theories of physics. Students further explore the laws of dynamics and energy transformations, and investigate electrical, gravitational, and magnetic fields; electromagnetic radiation; and the interface between energy and matter. They will further develop inquiry skills, learning, for example, how the interpretation

of experimental data can provide indirect evidence to support the development of a scientific model. Students will also consider the impact on society and the environment of technological applications of physics.
**Prequisite: SPH3U**

***the course is offered every two years. It will run in the 2020/21 school year.**

**Physics, College SPH4C**
This course develops students' understanding of the basic concepts of physics. Students will explore these concepts as they relate to mechanical, electrical, fluid (hydraulic and pneumatic), and communications systems, as well as to the operation of commonly used tools and equipment. They will develop scientific-inquiry skills as they verify accepted laws of physics and solve both assigned problems and those emerging from their investigations. Students will consider the impact of technological applications of physics on society and the environment. Students will also recognize the ethical ramifications of scientific knowledge and technological applications.
**Prerequisites: SNC2D or SNC2P**