COURSE SELECTION

Grade 12: OPTIONAL COURSES

English

The Writer's Craft (EWC4U)

This course emphasizes knowledge and skills related to the craft of writing. Students will analyse models of effective writing; use a workshop approach to produce a range of works; identify and use techniques required for specialized forms of writing; and identify effective ways to improve the quality of their writing. They will also complete a major paper as part of a creative or analytical independent study project and investigate opportunities for publication and for writing careers. **Prerequisite**: English, Grade 11, University Preparation

Mathematics

Advanced Functions, University Preparation (MHF4U)

This course extends students' experience with functions. Students will investigate the properties of polynomial, rational, logarithmic, and trigonometric functions; develop techniques for combining functions; broaden their understanding of rates of change; and develop facility in applying these concepts and skills. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. This course is intended both for students taking the Calculus and Vectors course as a prerequisite for a university program and for those wishing to consolidate their understanding of mathematics before proceeding to any one of a variety of university programs. **Prerequisite:** Functions, Grade 11, University Preparation, or Mathematics for College Technology, Grade 12, College Preparation

Calculus & Vectors, University Preparation (MCV4U)

This course builds on students' previous experience with functions and their developing understanding of rates of change. Students will solve problems involving geometric and algebraic representations of vectors and representations of lines and planes in three-dimensional space; broaden their understanding of rates of change to include the derivatives of polynomial, sinusoidal, exponential, rational, and radical functions; and apply these concepts and skills to the modelling of real-world relationships. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. This course is intended for students who choose to pursue careers in fields such as science, engineering, economics, and some areas of business, including those students who will be required to take a university-level calculus, linear algebra, or physics course. **Prerequisite:** Advanced Functions (MHF4U) must be taken prior to or concurrently with Calculus and Vectors (MCV4U).

Foundations for College Mathematics, College Preparation (MAP4C)

This course enables students to broaden their understanding of real-world applications of mathematics. Students will analyse data using statistical methods; solve problems involving applications of geometry and trigonometry; solve financial problems connected with annuities, budgets, and renting or owning accommodation; simplify expressions; and solve equations. Students will reason mathematically and communicate their thinking as they solve multi-step problems. This course prepares students for college programs in areas such as business, health sciences, and human services, and for certain skilled trades. **Prerequisite:** Foundations for College Mathematics, Grade 11, College Preparation, or Functions and Applications, Grade 11, University/College Preparation

Mathematics for Work and Everyday Life, Workplace Preparation (MEL4E)

This course enables students to broaden their understanding of mathematics as it is applied in the workplace and daily life. Students will investigate questions involving the use of statistics; apply the concept of probability to solve problems involving familiar situations; investigate accommodation costs, create household budgets, and prepare a personal income tax return; use proportional reasoning; estimate and measure; and apply geometric concepts to create designs. Students will consolidate their mathematical skills as they solve problems and communicate their thinking. **Prerequisite:** Mathematics for Work and Everyday Life, Grade 11, Workplace Preparation

Business Studies

International Business Fundamentals (BBB4M)

This course provides an overview of the importance of international business and trade in the global economy and explores the factors that influence success in international markets. Students will learn about the techniques and strategies associated with marketing, distribution, and managing international business effectively. This course prepares students for postsecondary programs in business, including international business, marketing, and management. **Prerequisite:** None

Sciences

Biology, University Preparation (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:** Biology, Grade 11, University Preparation

Chemistry, University Preparation (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:** Chemistry, Grade 11, University Preparation

Chemistry, College Preparation (SCH4C)

This course enables students to develop an understanding of chemistry through the study of matter and qualitative analysis, organic chemistry, electrochemistry, chemical calculations, and chemistry as it relates to the quality of the environment. Students will use 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 daily life and the effects of technological applications and processes on society and the environment. Prerequisite: Science, Grade 10, Academic or Applied

Physics, University Preparation (SPH4U)

This course enables students to deepen their understanding of physics concepts and theories. Students will continue their exploration of energy transformations and the forces that affect motion, and will investigate electrical, gravitational, and magnetic fields and electromagnetic radiation. Students will also explore the wave nature of light, quantum mechanics, and special relativity. They will further develop their scientific investigation skills, learning, for example, how to analyse, qualitatively and quantitatively, data related to a variety of physics concepts and principles. Students will also consider the impact of technological applications of physics on society and the environment. **Prerequisite:** Physics, Grade 11, University Preparation

Physics, College Preparation (SPH4C)

This course develops students' understanding of the basic concepts of physics. Students will explore these concepts with respect to motion; mechanical, electrical, electromagnetic, energy transformation, hydraulic, and pneumatic systems; and the operation of commonly used tools and machines. They will develop their scientific investigation skills as they test laws of physics and solve both assigned problems and those emerging from their investigations. Students will also consider the impact of technological applications of physics on society and the environment. **Prerequisite**: Science, Grade 10, Academic or Applied

Social Sciences and Humanities

Challenge & Change in Society (HSB4U)

This course focuses on the use of social science theories, perspectives, and methodologies to investigate and explain shifts in knowledge, attitudes, beliefs, and behaviour and their impact on society. Students will critically analyse how and why cultural, social, and behavioural patterns change over time. They will explore the ideas of social theorists and use those ideas to analyse causes of and responses to challenges such as technological change, deviance, and global inequalities. Students will explore ways in which social science research methods can be used to study social change. **Prerequisite:** Any university or university/college preparation course in Social Sciences and Humanities, English, or Canadian and World Studies

Human Development throughout the Lifespan (HHG4M)

This course offers a multidisciplinary approach to the study of human development throughout the lifespan. Students will learn about a range of theoretical perspectives on human development. They will examine threats to healthy development as well as protective factors that promote resilience. Students will learn about physical, cognitive, and social-emotional development from the prenatal period through old age and will develop their research and inquiry skills by investigating issues related to human development. **Prerequisite:** Any university, college, or university/college preparation course in Social Sciences and Humanities, English, or Canadian and World Studies

Families in Canada (HHS4U)

This course enables students to draw on sociological, psychological, and anthropological theories and research to analyse the development of individuals, intimate relationships, and family and parent-child relationships. Students will focus on issues and challenges facing individuals and families in Canada's diverse society. They will develop analytical tools that enable them to assess various factors affecting families and to consider policies and practices intended to support families in Canada. They will develop the investigative skills required to conduct and communicate the results of research on individuals, intimate relationships, and parent-child relationships. **Prerequisite:** Any university or university/college preparation course in Social Sciences and Humanities, English, or Canadian and World Studies

Nutrition and Health (HFA4U)

This course examines the relationships between food, energy balance, and nutritional status; the nutritional needs of individuals at different stages of life; and the role of nutrition in health and disease. Students will evaluate nutrition-related trends and will determine how food choices can promote food security and environmental responsibility. Students will learn about healthy eating, expand their repertoire of food-preparation techniques, and develop their social science research skills by investigating issues related to nutrition and health. **Prerequisite:** Any university or university/college preparation course in Social Sciences and Humanities, English, or Canadian and World Studies

World Cultures (HSC4M)

This course examines the nature of culture; how cultural identities are acquired, maintained, and transformed; and theories used to analyse cultures. Students will explore world cultures, with an emphasis on the analysis of religious and spiritual beliefs, art forms, and philosophy. They will study the contributions and influence of a range of cultural groups and will critically analyse issues facing ethnocultural groups within Canada and around the world. Students will develop and apply research skills and will design and implement a social action initiative relating to cultural diversity. **Prerequisite:** Any university, college, or university/college preparation course in Social Sciences and Humanities, English, or Canadian and World Studies

Canadian and World Studies

Canadian and International Politics (CPW4U)

This course explores various perspectives on issues in Canadian and world politics. Students will explore political decision making and ways in which individuals, stakeholder groups, and various institutions, including governments, multinational corporations, and non-governmental organizations, respond to and work to address domestic and international issues. Students will apply the concepts of political thinking and the political inquiry process to investigate issues, events, and developments of national and international political importance, and to develop and communicate informed opinions about them. **Prerequisite:** Any university or university/college preparation course in Canadian and world studies, English, or social sciences and humanities

World History Since the Fifteenth century (CHY4U)

This course traces major developments and events in world history since approximately 1450. Students will explore social, economic, and political changes, the historical roots of contemporary issues, and the role of conflict and cooperation in global interrelationships. They will extend their ability to apply the concepts of historical thinking and the historical inquiry process, including the interpretation and analysis of evidence, as they investigate key issues and ideas and assess societal progress or decline in world history. **Prerequisite:** Any university or university/college preparation course in Canadian and world studies, English, or social sciences and humanities

The Environment and Resource Management (CGR4M)

This course investigates the complexity and fragility of ecosystems and the pressures human activities place on them. Students will examine ecological processes, the principles of sustainability, and strategies for resource management, with a focus on the challenges of environmental degradation and resource depletion. Students will use geo-technologies and skills of geographic inquiry to explain and evaluate various approaches to achieving a more sustainable relationship between people and their environment. **Prerequisite:** Any university, university/college, or college preparation course in Canadian and World Studies, English, or Social Sciences and Humanities

World Issues: A Geographic Analysis (CGW4U)

In this course, students will address the challenge of creating a more sustainable and equitable world. They will explore issues involving a wide range of topics, including economic disparities, threats to the environment, globalization, human rights, and quality of life, and will analyse government policies, international agreements, and individual responsibilities relating to them. Students will apply the concepts of geographic thinking and the geographic inquiry process, including the use of spatial technologies, to investigate these complex issues and their impacts on natural and human communities around the world. **Prerequisite:** Any university or university/college preparation course in Canadian and world studies, English, or social sciences and humanities

Canada: History, Identity, and Culture (CHI4U)

This course explores the challenges associated with the formation of a Canadian national identity. Students will examine the social, political, and economic forces that have shaped Canada from the pre-contact period to the present and will investigate the historical roots of con temporary issues from a variety of perspectives. Students will use critical-thinking and communication skills to consider events and ideas in historical context, debate issues of culture and identity, and present their own views. **Prerequisite:** Any university or university/college preparation course in Canadian and World Studies, English, or Social Sciences and Humanities

Guidance and Career Education

Navigating the Workplace (GLN4O)

This course provides students with opportunities to develop the workplace essential skills and work habits required for success in all types of workplaces. Students will explore occupations and careers of interest through participation in real workplace experiences.They will make plans for continued learning and work, work with others to design learning experiences, and investigate the resources and support required to make a smooth transition to their postsecondary destination. **Prerequisite:** None

Personal Life Management (HIP4O)

This course focuses on preparing students for living independently and working successfully with others. Students will learn to manage their personal resources to meet their basic needs for food, clothing, and housing. They will also learn about their personal, legal, and financial responsibilities and develop and apply interpersonal skills in order to make wise and responsible personal and occupational choices. Students will apply research and inquiry skills while investigating topics related to personal life management. The course emphasizes the achievement of expectations through practical experiences. **Prerequisite:** None

Healthy Active Living

Healthy Active Living Education (PPL4O)

This course enables students to further develop the knowledge and skills they need to make healthy choices. It places special emphasis on how students can maintain the habits of healthy, active living throughout their lives as they make the transition to adulthood and independent living. Through participation in a wide range of physical activities in a variety of settings, students can enhance their movement competence, personal fitness, and confidence. Students also acquire an understanding of the factors and skills that contribute to healthy development and learn how their own well-being is affected by, and affects, the world around them. Students build their sense of self, learn to interact positively with others, and develop their ability to think critically and creatively. **Prerequisite:** None

Recreation and Healthy Active Living Leadership (PLF4M)

This course enables students to explore the benefits of lifelong participation in active recreation and healthy leisure and to develop the leadership and coordinating skills needed to plan, organize, and safely implement recreational events and other activities related to healthy, active living. Students will also learn how to promote the benefits of healthy, active living to others through mentoring and assisting them in making informed decisions that enhance their well-being. The course will prepare students for university programs in physical education and health and kinesiology and for college and university programs in recreation and leisure management, fitness and health promotion, and fitness leadership. **Prerequisite:** Any health and physical education course

Introduction to Kinesiology (PSK4U)

This course focuses on the study of human movement and of systems, factors, and principles involved in human development. Students will learn about the effects of physical activity on health and performance, the evolution of physical activity and sport, and the physiological, psychological, and social factors that influence an individual's participation in physical activity and sport. The course prepares students for university programs in physical education and health, kinesiology, health sciences, health studies, recreation, and sports administration. **Prerequisite:** Any Grade 11 university or university/college preparation course in science, or any Grade 11 or 12 course in health and physical education

Computer Studies

Computer Science (ICS4U)

This course enables students to further develop knowledge and skills in computer science. Students will use modular design principles to create complex and fully documented programs, according to industry standards. Student teams will manage a large software development project, from planning through to project review. Students will also analyse algorithms for effectiveness. They will investigate ethical issues in computing and further explore environmental issues, emerging technologies, areas of research in computer science, and careers in the field. **Prerequisite:** Introduction to Computer Science, Grade 11, University Preparation

Computer Programming (ICS4C)

This course further develops students' computer programming skills. Students will learn object-oriented programming concepts, create object-oriented software solutions, and design graphical user interfaces. Student teams will plan and carry out a software development project using industry-standard programming tools and proper project management techniques. Students will also investigate ethical issues in computing and expand their understanding of environmental issues, emerging technologies, and computer-related careers. **Prerequisite:** Introduction to Computer Programming, Grade 11, College Preparation