SCIENCE ELECTIVES FOR FAHSS STUDENTS

Please note that this list is informational and does not include all options available. This list contains most entry-level Science credits for FAHSS students.

BIOL-1003. Biology of Organisms
Genetics, energetics, and the diversity of life. Properties of living organisms from the level of the cell through tissues, organs and organ systems, to the functioning, integrated organism. This course is offered on-campus and as a distance course. (Intended for non-majors and students requiring preparation for BIOL-1111 and BIOL-1101.) (Not counted for credit in any Faculty of Science program.) (2 lecture hours a week.)

BIOL-1013. Organisms and the Environment
Organisms interacting with other organisms and with their physical environment. Ecological impacts of human activity. This course is offered on-campus and as a distance course. (Intended for non-majors and students requiring preparation for BIOL-1111 and BIOL-1101.)(Not counted for credit in any Faculty of Science program.) (2 lecture hours a week.)

CHEM-1000. Introduction to Chemistry
This course stresses fundamental principles of chemistry, and is intended for students lacking SCH4U or equivalent, or requiring additional preparation for CHEM-1100 (General Chemistry I), CHEM-1103 (Topics in General Chemistry) and BIOC-1303 (Organic and Biological Chemistry for Health Sciences) . Topics include: basic atomic theory, the periodic table, stoichiometry, properties of gases and liquids, acid-base concepts and chemical equilibria, organic and polymer chemistry. This course can serve as a prerequisite for CHEM-1100, but may not be taken for credit in any Science program. (4 lecture hours and 2 tutorial hours per week; or 3 lecture hours and 1 tutorial hour) (Students who first completed CHEM-1100 may not subsequently enrol in CHEM-1000.)

ESCI-1000. Natural Hazards and Disasters
The Earth's component systems and their interrelationships. Earth hazards and the Earth's interior processes: volcanism and earthquakes. Hazards and surface processes: landslides and floods. Atmospheric hazards: storms, hurricanes and tornadoes. (May be taken by Science students for credit, but does not count as a Science option towards the fulfillment of the specified requirements for a Science degree). (2 lecture hours per week)

ESCI-1010. Our Changing Earth
Origin of the universe and solar system; focus on the Earth and moon; earliest life forms. Measurement of geological time. Global climatic change in geological history; drifting continents; deserts, floods and ice sheets. Fossils and evolution; extinctions and probable causes. Human evolution and migrations; early technologies. (May be taken by Science students for credit, but does not count as a Science option towards the fulfillment of the specified requirements for a Science degree). (2 lecture hours a week)

ESCI-1020. Introduction to Planetary Science
An introduction to the origin of the Universe and Solar System. Topics include: the Big Bang theory; origin and organization of matter; and formation of galaxies, nebulae, stars, and planetary systems. The focus is on the geological features of planets, moons, asteroids, and comets. Coverage includes historical perspectives and current theory on astronomy, measurement of the ages of the Universe and Solar System, space exploration, Moon and Mars missions, analyses of NASA satellite images, the origin and evolution of life in the Solar System, and the search for possible extra-terrestrial life and intelligence in the Universe. (May be taken by Science students for credit, but does not count as a Science option towards the fulfillment of the specified requirements for a Science degree.) (3 lecture hours a week.)

ESTU-1000. Humans and the Environment
Humans use energy and resources from our natural surroundings to live, and to develop our societies and cultures. This use has an impact on other animals and plants, and on the air, water, and land. Our impact is now so great that we are in danger of depleting or destroying many of the natural systems on which we depend. This course examines our relationship with the environment: the impact of our activities on the environment, and the natural world's impact on us. Key concepts for understanding this relationship are developed through a survey of current environmental issues,

which may include topics such as: resources and sustainability, energy, population growth, globalization, urbanization, food and agriculture, and climate change. (May not be used to fulfill the major requirements for the BES degree.) (Can be taken as a Social Science option.) (Three lecture hours per week)

ESTU-2100. Canadian Regional Environments
Canada is a complex and varied nation. The environmental issues that concern each region of the country are also complex and varied. This course surveys the dominant environmental issues and impacts in each region of Canada, and explores the reasons for the regional variation through a variety of lenses: its physical landscape, its resource opportunities and challenges, its historical settlement patterns and economic development, and its social, cultural, and demographic structure. This context is used to develop an understanding of current environmental news and events across the country. (Can be taken as a Social Science option.) (Three lecture hours per week.)

ECON-1100. Introduction to Economics I
An introduction to microeconomics intended to provide students with the tools necessary to begin to understand and evaluate how resources are allocated in a market economy. Specific topics include how markets function, theories of the business firm, of consumer behaviour and of income distribution. The economic roles of labour unions and government are also covered. The theories are applied to contemporary Canadian economic problems.

ECON-1110. Introduction to Economics II
This course is an introduction to macroeconomics. The emphasis is upon measuring and explaining what determines economic aggregates such as the total national product (GDP) and the level of prices and employment. The role of money and financial institutions, the impact of international trade and the policy options available to governments for coping with inflation and unemployment are discussed in detail.

FRSC-1107. Introductory Crime Scene Investigation
This course will introduce students to the theoretical background of scientific methods used in Forensic Sciences and their practical applications to crime scene investigation within the multidisciplinary Forensic fields. The focus of the course is exploration and examination of evidence found at crime scenes. The students learn the discovery, identification, collection, examination and processing of various types of Forensic evidence.

FRSC-2007. Introduction to Forensic Science
This course will survey the many specialties of Forensic Science, including forensic pathology, entomology, anthropology, biology, botany, geology, etc. Special guest lectures by practicing forensic scientists will give students direct contact with the role they play in the extraction and meaning of evidence.

COMP-1047. Computer Concepts for End-Users
Introduction to the concepts of operation of a computer system, including hardware and software. Development of conceptual understanding of word processors, databases, spreadsheets, etc., and practical experience with their use. Networking concepts and data communication concepts will be introduced. The Internet will be introduced with students having access to internet resources. Management information systems including the systems development lifecycle will be discussed. Fundamental concepts of algorithm development and programming will be introduced. Hands-on experience with microcomputers as well as a distributed-computing environment will be involved. In addition to lecture time, laboratory/tutorial time may be scheduled as required. (May not be used to fulfill the major requirements of any major or joint major in Computer Science.) (3 lecture hours)

COMP-1400. Introduction to Algorithms and Programming I
This course is the first of a two-course sequence designed to introduce students to algorithm design and programming in a high-level language such as C. The main objectives of the course are to develop the ability to identify, understand and design solutions to a wide variety of problems. Topics include: computer system overview, hardware and software, problem solving steps, concepts of variables, constants, data types, algorithmic structure, sequential logic, decisions, loops, modular programming, one-dimensional arrays, text files. If possible, problems like searching/sorting will be addressed. (3 lecture hours and 1.5 laboratory hours a week)

COMP-2057. Introduction to the Internet
Students will be introduced to the Internet as a global information infrastructure, including fundamental concepts in protocols and services, packaging of data, and data transmission. Common tools and multimedia such as HTML, CSS, and CMS, used for the development of websites will also be introduced. Web page design, quality, accessibility and security issues will be discussed. How Web browsers and search engines work will be demonstrated. Social networks and other current Internet applications will be examined. In addition to lecture time, laboratory/ tutorial time may be scheduled as required. (Prerequisite: COMP-1047 or COMP-2067 or COMP-1400.) (May not be used to fulfill the major requirements of any major or joint major in Computer Science.) (3 lecture hours a week)

COMP-2067. Programming for Beginners
This course introduces fundamental computer programming principles and structured programming concepts, with an emphasis on good programming. Stages of the software development cycles are introduced: analysis, design, implementation, debugging and deployment. May not be used to fulfill the major requirements of any major or joint major in Computer Science.) (3 lecture hours).

COMP-2077. Problem Solving and Information on the Internet
Students will be introduced to logic and critical appraisals including reasoning skills and critical thinking in the computer age. Problem solving and heuristics will be discussed including how to solve problems by coming up with the right strategies. Searching using Boolean logic to pinpoint useful and reliable information will be introduced. Methods for being self-critical and critical of web information in order to perform evaluations will be studied. (Prerequisites COMP-1047 and COMP-2057.) (This course may not be taken to fulfill the major requirements of any major or joint major in Computer Science.) (3 lecture hours a week.)

COMP-2097. Social Media Marketing for End Users
This course provides review, analysis and use of social media and mobile technologies such as Instagram (tm), Facebook (tm), twitter (tm) LinkedIn (tm), texting, and using mobile devices such as laptops, ios (tm) devices, and Android devices. Topics to be covered include: a comprehensive review of available social media and mobile technology, use of social media and mobile technology for sharing of knowledge and for group interaction, security and privacy, ethical principles in social media, methods for analyzing end-user requirements for a social media application, strategies for designing, implementing, and maintaining an ethically-sound social media campaign, and measurement and assessment of social media analytics using industry standard tools and techniques. (This course may not be taken to fulfill the major requirements of any major or joint major in Computer Science.) (3 lecture hours).

MATH-1280. Access to Linear Algebra
This course will cover matrix algebra, linear systems, vectors, lines and planes in three- dimensional space, equations and inequalities in one variable and linear relations. This course serves as the prerequisite for MATH-1250 and MATH-1270. Majors in Science and majors in Engineering will not be given credit for this course. (3 lecture hours, 1 tutorial hour per week.)

PHYS-1305. Introductory Physics for Life Sciences I (B)
This is an algebra-based course intended for students interested in the biological or health sciences, or related disciplines. The topics covered include the basic mechanical concepts of force, work and energy, properties of matter, and heat, with examples and applications drawn from the modeling of biological systems. This course serves as the prerequisite for PHYS-1400 and GENG-1110. Majors in Science and Majors in Engineering will not be given credit for this course. (Antirequisite: PHYS-1300.) (Prerequisites: One 4U or OAC mathematics course or equivalent.) (3 lecture hours a week.)

PHYS-1000. Introduction to Astronomy I
The solar system with emphasis on the results of recent space exploration. This is a descriptive course suitable for the non-scientist. (May be taken by B.Sc. students for credit, but does not count as a Physics course or other science course towards the fulfillment of the requirements for the B.Sc. degree.) (2 lecture hours a week.)

PHYS-1010. Introduction to Astronomy II
The stars, galaxies, including pulsars, black holes, and quasars. Current theories of the structure of the universe will be discussed. This is a descriptive course suitable for the non-scientist. (May be taken by B.Sc. students for credit, but does not count as a Physics course or other science course towards the fulfillment of the requirements for the B.Sc. degree.) (2 lecture hours a week.)