BSc Honours Biomedical Science (Interdisciplinary Health Science Stream)

Minimum Requirements for Graduation: GPA Cumulative Average 60% and Major Average 70%

RECOMMENDED COURSE SEQUENCE

(Please note the recommended sequence of optional courses may be modified to best fit your schedule)

Fall Semester:	Winter Semester:
Year 1: Ten Courses Including: ❑ **BIOL 1101** – Cell Biology ❑ **CHEM 1100** – General Chemistry I ❑ **MATH 1720** or **MATH 1760** – Differential Calculus ❑ **PHYS 1300 –** Intro Physics Life Sciences **I** or **PHYS 1400** – Intro Physics I ❑ **IHSC-1000** – Foundations of Inter. Health Sciences	❑ **BIOL 1111** – Biological Diversity ❑ **CHEM 1110** – General Chemistry II ❑ **PHYS 1310 –** Intro Physics Life Sciences II or **PHYS 1410** – Intro Physics II ❑ **STAT 2910 –** Statistics for the Sciences ❑ _____ Course from IHS Concentration
Year 2: Ten Courses Including: ❑ **BIOL 2040** – Human Physiology I ❑ **BIOL 2111** – Genetics ❑ **CHEM 2300 –** Intro Organic Chemistry I ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Course from IHS Concentration	❑ **BIOC 2010** – Organic Chem. of Biomolecules ❑ **BIOM 2131 –** Introductory Molecular Biology ❑ **BIOL 2071 –** Intro Microbiology & Techniques ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Course from IHS Concentration
Year 3: Ten Courses Including: ❑ **BIOC 3100 –** Metabolism I ❑ **BIOM 3500 –** Molecular Cell Biology ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Course from IHS Concentration	❑ **BIOC 3110** – Metabolism II ❑ **BIOC 3130 –** Protein and Nucleic Acid Chemistry ❑ **BIOM 3530 –** Advanced Cell Biology ❑ **IHSC-3000** – Health Promotion and Translation ❑ _____ Biomedical Sci* or Additional Sci Option**
Year 4: Ten Courses Including: ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Course from IHS Concentration ❑ _____ Course from IHS Concentration	❑ **IHSC-4000** – Capstone Project ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Course from IHS Concentration ❑ _____ Course from IHS Concentration

*Must choose **8** courses from the following **Biomedical Sciences Options** (**MUST include 2 courses at 4000 level**)

❑ **BIOM 2021**	❑ **BIOM 3550**	❑ **BIOM 4440**	❑ **BIOM 4540**
❑ **BIOL 2480**	❑ **BIOM 3560**	❑ **BIOM4450**	❑ **BIOM 4550**
❑ **BIOM 3070**	❑ **BIOM 3581 (A&B)†**	❑ **BIOL 4481**	❑ **BIOM 4560**
❑ **BIOM 3400**	❑ **BIOM 3750**	❑ **BIOM 4510**	❑ **BIOM 4590**
❑ **BIOM 3540**	❑ **BIOM 4008**	❑ **BIOM 4530**	❑ **BIOM 4904†**

Must Choose **2 courses from the following **Additional Science (Biochem/Chem/Bio/Physics) Options**:

❑ **BIOC 4010**	❑ **BIOL 2050**	❑ **BIOL 3571**	❑ **CHEM 2500**
❑ **BIOC 4030**	❑ **BIOL 3022**	❑ **CHEM 2200**	❑ **CHEM 3210**
❑ **BIOC 4050**	❑ **BIOL 2142**	❑ **CHEM 2310**	❑ **PHYS 3700**

***Must Choose **8** courses from an **Interdisciplinary Health Science (IHS) Concentration Area Options** (see page 3 & 4 below for courses)

†Delivered over two semesters and counts for two courses (6 credits). BIOM 4904 also requires a 70% major GPA, and 60% cumulative GPA.

CORE COURSES SUMMARY

CORE COURSES (A) – BIOLOGY & BIOMEDICAL: Total 8 Courses

Complete **ALL** of the following:

- ❑ **BIOL 1101** – Cell Biology
- ❑ **BIOL 1111** – Biological Diversity
- ❑ **BIOL 2040** – Human Physiology I
- ❑ **BIOL 2071** – Intro Microbiology & Tech.
- ❑ **BIOL 2111** – Genetics
- ❑ **BIOM 2131** – Intro Molecular Biology
- ❑ **BIOM 3500 –** Molecular Cell Biology
- ❑ **BIOM 3530 –** Advanced Cell Biology

CORE COURSES – CHEMISTRY: Total 7 Courses

Complete **7** of the following:

- ❑ **BIOC 2010** – Organic Chem. of Biomolecules
- ❑ **BIOC 3100 –** Metabolism I
- ❑ **BIOC 3110** – Metabolism II
- ❑ **BIOC 3130 –** Protein and Nucleic Acid Chemistry
- ❑ **CHEM 1100** – General Chemistry I
- ❑ **CHEM 1110** – General Chemistry II
- ❑ **CHEM 2300 –** Intro Organic Chemistry I

PHYSICS PAIR: Total 2 Courses

Complete **1 PAIR** of the following:

- ❑ **PHYS 1300 & 1310** – Intro Physics Life Sciences I & II
- ❑ **PHYS 1400 & 1410** – Intro Physics I & II

MATH COURSES: Total 2 Courses

- ❑ **MATH 1720** or **MATH 1760** – Differential Calculus
- ❑ **STAT 2910 –** Statistics for the Sciences

BIOMEDICAL SCIENCES COURSES: – Total 8 courses

Complete **8** of the following (at **least 2 courses at 4000 level)**:

- ❑ **BIOM 2021** – Human Anatomy
- ❑ **BIOL 2480** – Principles of Neuroscience
- ❑ **BIOM 3070** – Medical Microbiology
- ❑ **BIOM 3400** – Neurobiology of the Synapse
- ❑ **BIOM 3540** – Immunology
- ❑ **BIOM 3550** – Embryology
- ❑ **BIOM 3560** – Homeostasis in Human Physiology
- ❑ **BIOM 3581 (A & B)**† – Biotechnology Laboratory
- ❑ **BIOM 3750** – Cancer Undergraduate Research Education
- ❑ **BIOM 4008** – Special Topics in Biomedical Sciences
- ❑ **BIOM 4440** – Neurophysiology
- ❑ **BIOL 4450** – Behavioural Neurobiology
- ❑ **BIOL 4481** – Excitable Cells
- ❑ **BIOM 4510** – Stem Cells
- ❑ **BIOM 4530** – Biology of Cell Transformation
- ❑ **BIOM 4540** – Regenerative Biology and Disease
- ❑ **BIOM 4550** – Develop. Signaling & Develop. Genetics
- ❑ **BIOM 4560** – Molecular Biotechnology
- ❑ **BIOM 4590** – Epigenetics
- ❑ **BIOM-4904**† **-** Undergrad Research Biomedical Science

†Delivered over two semesters and counts for two courses (6 credits). BIOM 4904 also requires a 70% major GPA, and 60% cumulative GPA.

ADDITIONAL CHEM/BIOCHEM/BIO/PHYS COURSES: – Total 2 courses

Complete **2** of the following:

- ❑ **BIOC 4010** – Bioinformatics/Genomics/Proteomics
- ❑ **BIOC 4030** – Enzymology and Biotechnology
- ❑ **BIOC 4050** – Drug Design
- ❑ **BIOL 2050** – Human Physiology II
- ❑ **BIOL 3022** – Res. Principles/Study Design Biology
- ❑ **BIOL 2142** – Principles of Evolution
- ❑ **BIOL 3571** – Animal Cells and Tissues
- ❑ **CHEM 2200** – Analytical Chemistry
- ❑ **CHEM 2310** – Intro. Organic Chemistry II
- ❑ **CHEM 2500** – Intro. Inorganic Chemistry
- ❑ **CHEM 3210** – Princ. of Instrumental Analysis
- ❑ **PHYS 3700** – Medical Physics

Interdisciplinary Health Science CORE Courses – Total 3 courses

Core Interdisciplinary Health Science Courses – Complete **ALL** of the following courses:

- ❑ **IHSC 1000** – Foundations in Inter. Health Sciences
- ❑ **IHSC-3000** – Health Promotion and Translation
- ❑ **IHSC 4000** – Capstone Project

Interdisciplinary Health Science CONCENTRATION Courses – Total 8 courses

Complete **8** courses from **one** of the concentrations areas below.

Please select only **one** of the concentration areas (see boxes below) and then choose **8** courses from those listed in the concentration area selected.

- ❑ **Selected Concentration Area**:_____.

Healthcare Economics: Complete **8** of the following courses:

- ❑ **ECON-1100** Introduction to Economics I
- ❑ **ECON-1110** Introduction to Economics II
- ❑ **ECON-2120** Intermediate Statistical Methods
- ❑ **ECON-2210** Intermediate Microeconomics
- ❑ **ECON-2900** Health Economics
- ❑ **ECON-4300** Economic Analysis of Law
- ❑ **ECON-4600** Cost-benefit analysis
- ❑ **STAT-2910** Statistics for the Sciences

Aging and Health: Complete **8** of the following courses:

- ❑ **GART-2040** Health-Care Ethics through the Lifespan
- ❑ **NURS-3510** The Meaning of Death
- ❑ **PHIL-2250** Ethics of Life, Death and Health Care
- ❑ **PHIL-2520** Existentialism
- ❑ **PSYC-1150** Introduction to Psych. as a Behavioural Science
- ❑ **PSYC-1160** Introduction to Psychology as a Social Science
- ❑ **PSYC-2250** Developmental Psych.: Adulthood and Aging
- ❑ **PSYC-2360** Introduction to Social Psychology
- ❑ **PSYC-3390** Health Psychology
- ❑ **SACR-3150** On Death and Dying
- ❑ **SWRK-3560** Serving Older People

Health and Society: Complete **8** of the following courses:

- ❑ **GART-1210** An Introduction into Indigenous Topics
- ❑ **GART-2040** Health-Care Ethics through the Lifespan
- ❑ **POLS/SOSC-3300** Psychoactive Substances and Social Policy
- ❑ **SOSC/WORK/WGST-4601** Seminar on Prostitution, Sexual Labour and Health
- ❑ **SACR-1100** Foundations of Social Life
- ❑ **SACR-2040** Sociology of Families
- ❑ **SACR-2050** Sociology of Sexualities
- ❑ **SACR-3150** On Death and Dying
- ❑ **SACR-3400** Food and Global Sustainability
- ❑ **SACR-3650** Green Criminology
- ❑ **SWRK-1170** Meeting Human Needs Social Welfare
- ❑ **WGST-1000** Women in Canadian Society
- ❑ **WGST-2500** Women's Bodies, Women's Health
- ❑ **WGST-2800** Boys to Men: A critical exploration
- ❑ **WGST-3470** Social Work and Violence
- ❑ **WGST-2100** Gender Sexuality and Social Justice
- ❑ **WGST-2200** Women, Race and Social Justice
- ❑ **WGST-3500** Practical Strategies for Social Change
- ❑ **WGST-4500** Practicum in Social Change

Medical Humanities: Complete **8** of the following courses:

- ❑ **CMAF-1010** Introduction to Media and Society
- ❑ **DRAM-2100** Speech Communication to Inform
- ❑ **ENGL-2410** Rhetoric
- ❑ **GART-1210** An Introduction into Indigenous Topics
- ❑ **GART-2040** Health-Care Ethics through the Lifespan
- ❑ **HIST-2500** Women in Canada and the United States,
- ❑ **HIST-4030** Medicine, Healing and the Health Profession
- ❑ **HIST-4630** History of Gender and Sexuality
- ❑ **MACS-2500** Stories of the City
- ❑ **PHIL-2550** Knowledge, Science and Society
- ❑ **PHIL-3590** Women, Knowledge & Reality
- ❑ **PSYC-1150** Introduction to Psych. as Behavioural Science
- ❑ **PSYC-1160** Introduction to Psychology as a Social Science
- ❑ **PSYC-2400** Psychology of Sex and Gender
- ❑ **ENGL-2310** World Literatures in English
- ❑ **ENGL-2320** Indigenous Literature
- ❑ **ENGL-2330** Gender and Literature

Indigenous Health: Complete **8** of the following courses:

- ❑ **GART-1210** An Introduction into Indigenous Topics
- ❑ **ENGL-2320** Indigenous Literature
- ❑ **HIST-2460** Aboriginal Peoples in Canadian History I
- ❑ **HIST-2470** Aboriginal Peoples in Canadian History II
- ❑ **ENGL-3330** Indigenous Literature of Turtle Island
- ❑ **PHIL-2300** Indigenous Philosophy of the Americas
- ❑ **PHIL-4260** Philosophy of Law
- ❑ **ESTU-1100** Humans and the Environment
- ❑ **POLS-2000** Indigenous Policy and Constitutional
- ❑ **POLS-3000** Indigenous Policy and Constitutional
- ❑ **POLS-4000** Indigenous Nation-Building: Traditional

Biostatistics: Complete **8** of the following courses:

- ❑ **MATH 1720/1760** Differential Calculus
- ❑ **MATH1250/1260** Linear Algebra
- ❑ **Math 1730** Integral Calculus
- ❑ **STAT-2920** Introduction to Probability
- ❑ **STAT-2950** Introduction to Statistics
- ❑ **STAT-3920** Probability
- ❑ **STAT-3950** Statistics
- ❑ **STAT-4xxx** Any other statistics
- ❑ **STAT-4550** Regression Analysis
- ❑ **STAT-4700** Biostatistics

Healthy Spaces and Places: Complete **8** of the following courses:

- ❑ **ESCI-1151** Fundamentals of GIS
- ❑ **MACS-2500** Stories of the City
- ❑ **VABE-1100** Architectural Design I
- ❑ **VABE-1200** Architectural Design II
- ❑ **VABE-2130** Principles of Structural Behaviour
- ❑ **VABE-4600** Space in Acoustics and Light
- ❑ **MACS-4520** Urban Ecologies
- ❑ **MACS-4500** Border Culture
- ❑ **MACS-2200** The Planned City as a Work of Art
- ❑ **VSAR-3850** Green Corridor
- ❑ **MACS-1500** Contemporary Visual Culture
- ❑ **MACS-2140** Survey of Art History: Ancient to Medieval
- ❑ **MACS-2150** Survey of Art History: Renaissance to Modern

One Health: Complete **8** of the following courses:

Two (2) of:

- ❑ **BIOL-2101** Ecology
- ❑ **BIOL-2071** Introductory microbiology and techniques

Three (3) of:

- ❑ **BIOL-2040** Human Physiology I
- ❑ **BIOL-2080** Economic Botany
- ❑ **BIOL-2480** Principles of Neuroscience
- ❑ **BIOL-3212** Environmental Physiology
- ❑ **BIOL-3201** Applied Entomology
- ❑ **BIOL-3250** Population and community ecology
- ❑ **BIOL-4232** Pollution Ecology
- ❑ **BIOL-4252** Evolutionary Endocrinology
- ❑ **BIOL-4270** Conservation Biology
- ❑ **BIOM-3070** Medical microbiology
- ❑ **BIOM-3540** Immunology
- ❑ **BIOM-3550** Embryology

Two (2) of:

- ❑ **ESCI-1100** Environmental Systems – an Introduction to Environmental Science
- ❑ **ESCI-1111** Introduction to Earth Science
- ❑ **ESCI-1130** Atmosphere and Climate
- ❑ **ESCI-2210** Introduction to Climate Change
- ❑ **ESCI-3310** Global water Crisis
- ❑ **ESCI-4500** Ecosystem Health

One (1) of:

- ❑ **GART-1210** An introduction into Indigenous topics
- ❑ **SACR-2270** Globalization, Development and Social Change
- ❑ **ESTU-1100** Humans and the Environment – An Introduction to Environmental Studies
- ❑ **ESTU-2500** Concepts for Ecosystem Management
- ❑ **GART-2040** Health-Care Ethics through the Life-Span
- ❑ **PHIL-2270** Environmental Ethics
- ❑ **PHIL-2280** Technology, Human Values and the Environment
- ❑ **PHIL-2300** Indigenous Philosophy of the Americas

Please note: Maximum of 14 courses at 1000 level can be used towards the degree requirement.