

BSc Honours Biomedical Science - Interdisciplinary Health Science (IHS) 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

- ☐ **BIOM 2131** – Introductory Molecular Biology
- ☐ **BIOL 2071** – Intro Microbiology & Techniques
- ☐ **BIOC 2010** – Organic Chem. of Biomolecules
- ☐ _____ Biomedical Sci* or Additional Sci Option**
- ☐ _____ Course from IHS Concentration

Year 3: Ten Courses Including:

- ☐ **BIOM 3500** – Molecular Cell Biology
- ☐ **BIOC 3100** – Metabolism I
- ☐ **IHSC-3000** – Health Promotion and Translation
- ☐ _____ Biomedical Sci* or Additional Sci Option**
- ☐ _____ Biomedical Sci* or Additional Sci Option**

- ☐ **BIOM 3530** – Advanced Cell Biology
- ☐ **BIOC 3110** – Metabolism II
- ☐ **BIOC 3130** – Protein and Nucleic Acid Chemistry
- ☐ _____ Biomedical Sci* or Additional Sci Option**
- ☐ _____ Course from IHS Concentration

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 | ☐ BIOL 4450 * | ☐ BIOM 4560 |
| ☐ BIOL 2480 * | ☐ BIOM 3560 | ☐ BIOM 4500 * | ☐ BIOM 4570 |
| ☐ BIOM 3070 | ☐ BIOM 3581 (A&B) † | ☐ BIOM 4510 | ☐ BIOM 4580 |
| ☐ BIOM 3200 * | ☐ BIOM 3750 | ☐ BIOM 4530 | ☐ BIOM 4590 |
| ☐ BIOM 3400 * | ☐ BIOM 4008 | ☐ BIOM 4540 * | ☐ BIOM 4904 † |
| ☐ BIOM 3540 | ☐ BIOM 4440 * | ☐ BIOM 4550 | |

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

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|---|---|---|---|
| ☐ CHEM 2200 | ☐ CHEM 3210 | ☐ BIOC 3030 | ☐ BIOC 4020 |
| ☐ CHEM 2310 | ☐ BIOL 2050 | ☐ BIOC 3140 | ☐ BIOC 4030 |
| ☐ CHEM 2500 | ☐ BIOL 2142 | ☐ BIOC 3310 | ☐ BIOC 4050 |
| ☐ CHEM 2510 | ☐ BIOL 3571 | ☐ BIOC 4010 | ☐ PHYS 3700 |

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

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 |
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CORE COURSES – CHEMISTRY: Total 7 Courses

Complete **ALL** of the following:

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|--|--|
| ☐ 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:

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|---|---|
| ☐ PHYS 1300 & 1310 – Intro Physics Life Sciences I & II | ☐ PHYS 1400 & 1410 – Intro Physics I & II |
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MATH COURSES: Total 2 Courses

- | | |
|---|---|
| ☐ MATH 1720 or MATH 1760 – Differential Calculus | ☐ STAT 2910 – Statistics for the Sciences |
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BIOMEDICAL SCIENCES COURSES: – Total 8 courses

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

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|--|--|
| ☐ BIOM 2021 – Human Anatomy
☐ BIOL 2480 * – Principles of Neuroscience
☐ BIOM 3070 – Medical Microbiology
☐ BIOM 3200 * – Systems Neuroscience
☐ 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
☐ BIOM 4500 * – Molecular Basis of Behaviour
☐ BIOM 4510 – Stem Cells
☐ BIOM 4530 – Biology of Cell Transformation
☐ BIOM 4540 * – Regenerative Neurobiology and Disease
☐ BIOM 4550 – Develop. Signaling & Develop. Genetics
☐ BIOM 4560 – Molecular Biotechnology
☐ BIOM 4570 – Intro Genomics: Data collect. & Bioinformatics
☐ BIOM 4580 – Nutrition: Cell & Mol. Mechanisms
☐ BIOM 4590 – Epigenetics
☐ BIOM 4904† – Undergrad Research Biomedical Sciences |
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†Delivered over two semesters and counts for two courses (6 credits). BIOM 4904 also requires a 70% major GPA, and 60% cumulative GPA.

* BIOL 2480 is the prerequisite required for BIOM 3200, BIOM 3400, BIOM 4440, BIOM 4500, BIOM 4540 and BIOL 4450

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

Complete **2** of the following:

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|--|---|
| ☐ CHEM 2200 – Analytical Chemistry
☐ CHEM 2310 – Intro Organic Chemistry II
☐ CHEM 2500 – Intro Inorganic Chemistry I
☐ CHEM 2510 – Intro Inorganic Chemistry II
☐ CHEM 3210 – Princ. of Instrumental Analysis
☐ BIOL 2050 – Human Physiology II
☐ BIOL 2142 – Principles of Evolution
☐ BIOL 3571 – Animal Cells and Tissues | ☐ BIOC 3030 – Natural Health Products
☐ BIOC 3140 – Protein and Enzyme Engineering
☐ BIOC 3310 – Pharmacology for Health Sciences
☐ BIOC 4010 – Bioinformatics/Genomics/Proteomics
☐ BIOC 4020 – Lipids, Lipoproteins, and Signaling
☐ BIOC 4030 – Enzymology and Biotechnology
☐ BIOC 4050 – Drug Design
☐ PHYS 3700 – Intro to 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 4951** 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/IACS 4501** 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
- ☐ **ICWG 1000** Women in Canadian Society
- ☐ **ICWG 2200** Women, Race and Social Justice
- ☐ **ICWG 2300** Gender Sexuality and Social Justice
- ☐ **ICWG 2500** Women's Bodies, Women's Health
- ☐ **ICWG 2800** Boys to Men: A critical exploration
- ☐ **ICWG 3470** Social Work and Violence
- ☐ **IACS 3500** Practical Strategies for Social Change
- ☐ **IACS 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
- ☐ **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
- ☐ **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
- ☐ **ENGL 2410** Rhetoric

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

- ☐ **GART 1210** An Introduction into Indigenous Topics
- ☐ **HIST 2460** Aboriginal Peoples in Canadian History I
- ☐ **HIST 2470** Aboriginal Peoples in Canadian History II
- ☐ **ENGL 2320** Indigenous Literature
- ☐ **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 1500** Contemporary Visual Culture
- ☐ **MACS 2050** Art and Material Culture
- ☐ **MACS 2150** Art and Visual Culture
- ☐ **MACS 2200** The Planned City as a Work of Art
- ☐ **MACS 2500** Stories of the City
- ☐ **MACS 4500** Border Culture
- ☐ **MACS 4520** Urban Ecologies
- ☐ **VABE 1100** Architectural Design I
- ☐ **VABE 1200** Architectural Design II
- ☐ **VABE 2130** Principles of Structural Behaviour
- ☐ **VABE 4600** Space in Acoustics and Light
- ☐ **VSAR 3850** Green Corridor

One Health: Complete **8** of the following courses:**Three (3) of:**

- ☐ **BIOL 2040** Human Physiology I
- ☐ **BIOL 2071** Introductory microbiology and techniques
- ☐ **BIOL 2080** Economic Botany
- ☐ **BIOL 2101** Ecology
- ☐ **BIOL 2480** Principles of Neuroscience
- ☐ **BIOL 3212** Environmental Physiology
- ☐ **BIOL 3201** Applied Entomology
- ☐ **BIOL 3250** Population and community ecology
- ☐ **BIOL 4252** Evolutionary Endocrinology
- ☐ **BIOL 4270** Conservation Biology
- ☐ **BIOM 3070** Medical microbiology
- ☐ **BIOM 3540** Immunology
- ☐ **BIOM 3550** Embryology

Three (3) 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

Two (2) of:

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

Please note that courses used to satisfy the IHS requirements in this section cannot also be used to satisfy another program requirement in any other section of program requirements.