

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:

<p>Year 1: Ten Courses Including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> BIOL 1101 – Cell Biology <input type="checkbox"/> CHEM 1100 – General Chemistry I <input type="checkbox"/> MATH 1720 or MATH 1760 – Differential Calculus <input type="checkbox"/> PHYS 1300 – Intro Physics Life Sciences I or PHYS 1400 – Intro Physics I <input type="checkbox"/> _____ Course from IHS Concentration 	<ul style="list-style-type: none"> <input type="checkbox"/> BIOL 1111 – Biological Diversity <input type="checkbox"/> CHEM 1110 – General Chemistry II <input type="checkbox"/> PHYS 1310 – Intro Physics Life Sciences II or PHYS 1410 – Intro Physics II <input type="checkbox"/> STAT 2910 – Statistics for the Sciences <input type="checkbox"/> IHSC-1000 – Foundations of Inter. Health Sciences
<p>Year 2: Ten Courses Including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> BIOL 2040 – Human Physiology I <input type="checkbox"/> BIOL 2071 – Intro Microbiology & Techniques <input type="checkbox"/> BIOL 2111 – Genetics <input type="checkbox"/> CHEM 2300 – Intro Organic Chemistry I <input type="checkbox"/> _____ Course from IHS Concentration 	<ul style="list-style-type: none"> <input type="checkbox"/> BIOC 2010 – Organic Chem. of Biomolecules <input type="checkbox"/> BIOM 2131 – Introductory Molecular Biology <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Course from IHS Concentration
<p>Year 3: Ten Courses Including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> BIOC 3100 – Metabolism I <input type="checkbox"/> BIOM 3500 – Molecular Cell Biology <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> IHSC-3000 – Health Promotion and Translation 	<ul style="list-style-type: none"> <input type="checkbox"/> BIOC 3110 – Metabolism II <input type="checkbox"/> BIOC 3130 – Protein and Nucleic Acid Chemistry <input type="checkbox"/> BIOM 3530 – Advanced Cell Biology <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Course from IHS Concentration
<p>Year 4: Ten Courses Including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Course from IHS Concentration <input type="checkbox"/> _____ Course from IHS Concentration 	<ul style="list-style-type: none"> <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> IHSC-4000 – Capstone Project <input type="checkbox"/> _____ Course from IHS Concentration <input type="checkbox"/> _____ Course from IHS Concentration

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

- | | | | |
|---|--|---|--|
| <input type="checkbox"/> BIOM 2021 | <input type="checkbox"/> BIOM 3550 | <input type="checkbox"/> BIOM 4440 | <input type="checkbox"/> BIOM 4540 |
| <input type="checkbox"/> BIOL 2480 | <input type="checkbox"/> BIOM 3560 | <input type="checkbox"/> BIOM4450 | <input type="checkbox"/> BIOM 4550 |
| <input type="checkbox"/> BIOM 3070 | <input type="checkbox"/> BIOM 3581 (A&B)† | <input type="checkbox"/> BIOL 4481 | <input type="checkbox"/> BIOM 4560 |
| <input type="checkbox"/> BIOM 3400 | <input type="checkbox"/> BIOM 3750 | <input type="checkbox"/> BIOM 4510 | <input type="checkbox"/> BIOM 4590 |
| <input type="checkbox"/> BIOM 3540 | <input type="checkbox"/> BIOM 4008 | <input type="checkbox"/> BIOM 4530 | <input type="checkbox"/> BIOM 4904† |

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

- | | | | |
|---|---|---|---|
| <input type="checkbox"/> BIOC 4010 | <input type="checkbox"/> BIOL 2050 | <input type="checkbox"/> BIOL 3571 | <input type="checkbox"/> CHEM 2500 |
| <input type="checkbox"/> BIOC 4030 | <input type="checkbox"/> BIOL 3022 | <input type="checkbox"/> CHEM 2200 | <input type="checkbox"/> CHEM 3210 |
| <input type="checkbox"/> BIOC 4050 | <input type="checkbox"/> BIOL 3142 | <input type="checkbox"/> CHEM 2310 | <input type="checkbox"/> 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.

Students considering application to some Pharmacy schools are advised to take CHEM-2400.

Students planning to write the MCAT or DAT may wish to take PSYC-1150 and PSYC-1160 (Social Science) and GART-1500 or ENGL-1001 (Art/Language)

CORE COURSES SUMMARY**CORE COURSES (A) – BIOLOGY & BIOMEDICAL: Total 8 Courses**Complete **ALL** of the following:

- | | |
|--|---|
| <input type="checkbox"/> BIOL 1101 – Cell Biology | <input type="checkbox"/> BIOL 2111 – Genetics |
| <input type="checkbox"/> BIOL 1111 – Biological Diversity | <input type="checkbox"/> BIOM 2131 – Intro Molecular Biology |
| <input type="checkbox"/> BIOL 2040 – Human Physiology I | <input type="checkbox"/> BIOM 3500 – Molecular Cell Biology |
| <input type="checkbox"/> BIOL 2071 – Intro Microbiology & Tech. | <input type="checkbox"/> BIOM 3530 – Advanced Cell Biology |

CORE COURSES – CHEMISTRY: Total 7 CoursesComplete **7** of the following:

- | | |
|--|---|
| <input type="checkbox"/> BIOC 2010 – Organic Chem. of Biomolecules | <input type="checkbox"/> CHEM 1100 – General Chemistry I |
| <input type="checkbox"/> BIOC 3100 – Metabolism I | <input type="checkbox"/> CHEM 1110 – General Chemistry II |
| <input type="checkbox"/> BIOC 3110 – Metabolism II | <input type="checkbox"/> CHEM 2300 – Intro Organic Chemistry I |
| <input type="checkbox"/> BIOC 3130 – Protein and Nucleic Acid Chemistry | |

PHYSICS PAIR: Total 2 CoursesComplete **1 PAIR** of the following:

- | | |
|---|---|
| <input type="checkbox"/> PHYS 1300 & 1310 – Intro Physics Life Sciences I & II | <input type="checkbox"/> PHYS 1400 & 1410 – Intro Physics I & II |
|---|---|

MATH COURSES: Total 2 Courses

- | | |
|---|---|
| <input type="checkbox"/> MATH 1720 or MATH 1760 – Differential Calculus | <input type="checkbox"/> STAT 2910 – Statistics for the Sciences |
|---|---|

BIOMEDICAL SCIENCES COURSES: – Total 8 coursesComplete **8** of the following (at **least 2 courses at 4000 level**):

- | | |
|---|--|
| <input type="checkbox"/> BIOM 2021 – Human Anatomy | <input type="checkbox"/> BIOM 4008 – Special Topics in Biomedical Sciences |
| <input type="checkbox"/> BIOL 2480 – Principles of Neuroscience | <input type="checkbox"/> BIOM 4440 – Neurophysiology |
| <input type="checkbox"/> BIOM 3070 – Medical Microbiology | <input type="checkbox"/> BIOL 4450 – Behavioural Neurobiology |
| <input type="checkbox"/> BIOM 3400 – Neurobiology of the Synapse | <input type="checkbox"/> BIOL 4481 – Excitable Cells |
| <input type="checkbox"/> BIOM 3540 – Immunology | <input type="checkbox"/> BIOM 4510 – Stem Cells |
| <input type="checkbox"/> BIOM 3550 – Embryology | <input type="checkbox"/> BIOM 4530 – Biology of Cell Transformation |
| <input type="checkbox"/> BIOM 3560 – Homeostasis in Human Physiology | <input type="checkbox"/> BIOM 4540 – Regenerative Biology and Disease |
| <input type="checkbox"/> BIOM 3581 (A & B)† – Biotechnology Laboratory | <input type="checkbox"/> BIOM 4550 – Develop. Signaling & Develop. Genetics |
| <input type="checkbox"/> BIOM 3750 – Cancer Undergraduate Research Education | <input type="checkbox"/> BIOM 4560 – Molecular Biotechnology |
| | <input type="checkbox"/> BIOM 4590 – Epigenetics |
| | <input type="checkbox"/> 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 coursesComplete **2** of the following:

- | | |
|--|---|
| <input type="checkbox"/> BIOC 4010 – Bioinformatics/Genomics/Proteomics | <input type="checkbox"/> BIOL 3142 – Evolution |
| <input type="checkbox"/> BIOC 4030 – Enzymology and Biotechnology | <input type="checkbox"/> BIOL 3571 – Animal Cells and Tissues |
| <input type="checkbox"/> BIOC 4050 – Drug Design | <input type="checkbox"/> CHEM 2200 – Analytical Chemistry |
| <input type="checkbox"/> BIOL 2050 – Human Physiology II | <input type="checkbox"/> CHEM 2310 – Intro. Organic Chemistry II |
| <input type="checkbox"/> BIOL 3022 – Res. Principles/Study Design Biology | <input type="checkbox"/> CHEM 2500 – Intro. Inorganic Chemistry |
| | <input type="checkbox"/> CHEM 3210 – Princ. of Instrumental Analysis |
| | <input type="checkbox"/> 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
- GART/SOSC****** Psychoactive Substances and Social Policy
- GART/SOSC****** Advanced Seminar on Prostitution
- SACR-1000** Understanding 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-24010** 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
- PSYC-2400** Psychology of Sex and Gender
- 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-3420** Probability
- STAT-3950** Statistics
- STAT-4xxx** Any other statistics
- STAT-4550** Regression Analysis
- STAT-4970** 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 of:**

- BIOL-2101** Ecology
- BIOL 2070** Introductory Microbiology **or** **BIOL-2071** Introductory microbiology and techniques

Three 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 of:

- ESCI-1100** Environmental Systems
- 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 of:

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