

BSc Honours Biomedical Science**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: <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 <u>or</u> PHYS 1400 – Intro Physics I <input type="checkbox"/> _____ Any Area of Study Course | <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 <u>or</u> PHYS 1410 – Intro Physics II <input type="checkbox"/> STAT 2910 – Statistics for the Sciences <input type="checkbox"/> _____ Any Area of Study Course |
| Year 2: Ten Courses Including: <ul style="list-style-type: none"> <input type="checkbox"/> BIOL 2040 – Human Physiology I <input type="checkbox"/> BIOL 2111 – Genetics <input type="checkbox"/> CHEM 2300 – Intro Organic Chemistry I <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Any Area of Study Course | <ul style="list-style-type: none"> <input type="checkbox"/> BIOM 2131 – Introductory Molecular Biology <input type="checkbox"/> BIOL 2071 – Intro Microbiology & Techniques <input type="checkbox"/> BIOC 2010 – Organic Chem. of Biomolecules <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Any Area of Study Course |
| Year 3: Ten Courses Including: <ul style="list-style-type: none"> <input type="checkbox"/> BIOM 3500 – Molecular Cell Biology <input type="checkbox"/> BIOC 3100 – Metabolism I <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Any Science Course | <ul style="list-style-type: none"> <input type="checkbox"/> BIOM 3530 – Advanced Cell Biology <input type="checkbox"/> BIOC 3130 – Protein and Nucleic Acid Chemistry <input type="checkbox"/> BIOC 3110 – Metabolism II <input type="checkbox"/> _____ Biomedical Sci* or Additional Sci Option** <input type="checkbox"/> _____ Any Science Course |
| Year 4: Ten Courses Including: <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"/> _____ Any Science Course <input type="checkbox"/> _____ Any Science Course | <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"/> _____ Any Science Course <input type="checkbox"/> _____ Any Science Course |

*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"/> BIOL 4450 * | <input type="checkbox"/> BIOM 4570 |
| <input type="checkbox"/> BIOL 2480 * | <input type="checkbox"/> BIOM 3560 | <input type="checkbox"/> BIOM 4510 | <input type="checkbox"/> BIOM 4580 |
| <input type="checkbox"/> BIOM 3070 | <input type="checkbox"/> BIOM 3581 (A&B) † | <input type="checkbox"/> BIOM 4530 | <input type="checkbox"/> BIOM 4590 |
| <input type="checkbox"/> BIOM 3200 * | <input type="checkbox"/> BIOM 3750 | <input type="checkbox"/> BIOM 4540 * | <input type="checkbox"/> BIOM 4904 † |
| <input type="checkbox"/> BIOM 3400 * | <input type="checkbox"/> BIOM 4008 | <input type="checkbox"/> BIOM 4550 | <input type="checkbox"/> BIOL 4904 † |
| <input type="checkbox"/> BIOM 3540 | <input type="checkbox"/> BIOM 4440 * | <input type="checkbox"/> BIOM 4560 | <input type="checkbox"/> CHEM 4900 † |

Must Choose **3 courses from the following **Additional Science (Biochem/Chem/Bio/Physics) Options**:

- | | | | |
|---|---|---|---|
| <input type="checkbox"/> CHEM 2200 | <input type="checkbox"/> CHEM 3210 | <input type="checkbox"/> BIOC 3030 | <input type="checkbox"/> BIOC 4020 |
| <input type="checkbox"/> CHEM 2310 | <input type="checkbox"/> BIOL 2050 | <input type="checkbox"/> BIOC 3140 | <input type="checkbox"/> BIOC 4030 |
| <input type="checkbox"/> CHEM 2500 | <input type="checkbox"/> BIOL 2142 | <input type="checkbox"/> BIOC 3310 | <input type="checkbox"/> BIOC 4050 |
| <input type="checkbox"/> CHEM 2510 | <input type="checkbox"/> BIOL 3571 | <input type="checkbox"/> BIOC 4010 | <input type="checkbox"/> PHYS 3700 |

†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-4540 and BIOL-4450

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 **ALL** of the following:

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

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 4440 – Neurophysiology |
| <input type="checkbox"/> BIOL 2480 – Principles of Neuroscience | <input type="checkbox"/> BIOL 4450 – Behavioural Neurobiology |
| <input type="checkbox"/> BIOM 3070 – Medical Microbiology | <input type="checkbox"/> BIOM 4510 – Stem Cells |
| <input type="checkbox"/> BIOM 3200 – Systems Neuroscience | <input type="checkbox"/> BIOM 4530 – Biology of Cell Transformation |
| <input type="checkbox"/> BIOM 3400 – Neurobiology of the Synapse | <input type="checkbox"/> BIOM 4540 – Regenerative Neurobiology and Disease |
| <input type="checkbox"/> BIOM 3540 – Immunology | <input type="checkbox"/> BIOM 4550 – Develop. Signaling & Develop. Genetics |
| <input type="checkbox"/> BIOM 3550 – Embryology | <input type="checkbox"/> BIOM 4560 – Molecular Biotechnology |
| <input type="checkbox"/> BIOM 3560 – Homeostasis in Human Physiology | <input type="checkbox"/> BIOM 4570 – Intro Genomics: Data collect. & Bioinformatics |
| <input type="checkbox"/> BIOM 3581 (A & B)† – Biotechnology Laboratory | <input type="checkbox"/> BIOM 4580 – Nutrition: Cell & Mol Mechanisms in the gut, brain &.. |
| <input type="checkbox"/> BIOM 3750 – Cancer Undergraduate Research Education | <input type="checkbox"/> BIOM 4590 – Epigenetics |
| <input type="checkbox"/> BIOM 4008 – Special Topics in Biomedical Sciences | <input type="checkbox"/> BIOM 4904† – Undergrad Research Biomedical Sciences |
| | <input type="checkbox"/> BIOL 4904† – Undergraduate Research in Biology |
| | <input type="checkbox"/> CHEM 4900† – Research |

ADDITIONAL CHEM/BIOCHEM/BIO/PHYS COURSES: – Total 3 CoursesComplete **3** of the following:

- | | |
|---|---|
| <input type="checkbox"/> CHEM 2200 – Analytical Chemistry | <input type="checkbox"/> BIOL 3571 – Animal Cells and Tissues |
| <input type="checkbox"/> CHEM 2310 – Intro Organic Chemistry II | <input type="checkbox"/> BIOC 3030 – Natural Health Products |
| <input type="checkbox"/> CHEM 2500 – Intro Inorganic Chemistry I | <input type="checkbox"/> BIOC 3140 – Protein and Enzyme Engineering |
| <input type="checkbox"/> CHEM 2510 – Intro Inorganic Chemistry II | <input type="checkbox"/> BIOC 3310 – Pharmacology for Health Sciences |
| <input type="checkbox"/> CHEM 3210 – Princ. of Instrumental Analysis | <input type="checkbox"/> BIOC 4010 – Bioinformatics/Genomics/Proteomics |
| <input type="checkbox"/> BIOL 2050 – Human Physiology II | <input type="checkbox"/> BIOC 4020 – Lipids, Lipoproteins, and Signaling |
| <input type="checkbox"/> BIOL 2142 – Principles of Evolution | <input type="checkbox"/> BIOC 4030 – Enzymology and Biotechnology |
| | <input type="checkbox"/> BIOC 4050 – Drug Design |
| | <input type="checkbox"/> PHYS 3700 – Intro to Medical Physics |

ADDITIONAL COURSES – Total 10 courses

- | | |
|--|---|
| <input type="checkbox"/> Any Science – Choose 6 Courses from any area of Science | <input type="checkbox"/> Any Area of Study – Choose 4 Courses (Recommend a minimum of one Arts/Language and one Social Science) |
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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/or ENGL course (Art/Language)