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: ❑ **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 ❑ _____ Any Area of Study Course	❑ **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 ❑ _____ Any Area of Study Course
Year 2: Ten Courses Including: ❑ **BIOL 2040** – Human Physiology I ❑ **BIOL 2071 –** Intro Microbiology & Techniques ❑ **BIOL 2111** – Genetics ❑ **CHEM 2300 –** Intro Organic Chemistry I ❑ _____ Any Area of Study Course	❑ **BIOC 2010** – Organic Chem. of Biomolecules ❑ **BIOM 2131 –** Introductory Molecular Biology ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Any Area of Study Course
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** ❑ _____ Any Science Course	❑ **BIOC 3110** – Metabolism II ❑ **BIOC 3130 –** Protein and Nucleic Acid Chemistry ❑ **BIOM 3530 –** Advanced Cell Biology ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Any Science Course
Year 4: Ten Courses Including: ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Any Science Course ❑ _____ Any Science Course	❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Biomedical Sci* or Additional Sci Option** ❑ _____ Any Science Course ❑ _____ Any Science Course

*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 or 3071**	❑ **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 **3 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 3142**	❑ **CHEM 2310**	❑ **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.

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 OR **BIOM 3071** – Medical Micro. And Techniques (cannot take both)
- ❑ **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 3 courses

Complete **3** 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 3142** – 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

ADDITIONAL COURSES – Total 10 courses

- ❑ **Any Science –** Choose **6** Courses from any area of Science

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- ❑ **Any Area of Study –** Choose **4** Courses (Recommend a minimum of one Arts/Language and one Social Science)

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