

**BSc Honours Biomedical Sciences****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 2111** – Genetics
- ☐ **CHEM 2300** – Intro Organic Chemistry I
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Any Area of Study Course

- ☐ **BIOM 2131** – Introductory Molecular Biology
- ☐ **BIOL 2071** – Intro Microbiology & Techniques
- ☐ **BIOC 2010** – Organic Chem. of Biomolecules
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Any Area of Study Course

**Year 3: Ten Courses Including:**

- ☐ **BIOM 3500** – Molecular Cell Biology
- ☐ **BIOC 3100** – Metabolism I
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Any Science Course

- ☐ **BIOM 3530** – Advanced Cell Biology
- ☐ **BIOC 3130** – Protein and Nucleic Acid Chemistry
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Any Science Course

**Year 4: Ten Courses Including:**

- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Any Science Course
- ☐ \_\_\_\_\_ Any Science Course

- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other Sci Option\*\*
- ☐ \_\_\_\_\_ Biomedical Sci\* or Other 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)**

- |                                            |                                                      |                                            |                                            |
|--------------------------------------------|------------------------------------------------------|--------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> <b>BIOM 2021</b>  | <input type="checkbox"/> <b>BIOM 3550</b>            | <input type="checkbox"/> <b>BIOM 4500*</b> | <input type="checkbox"/> <b>BIOM 4570</b>  |
| <input type="checkbox"/> <b>BIOM 2400*</b> | <input type="checkbox"/> <b>BIOM 3560</b>            | <input type="checkbox"/> <b>BIOM 4510</b>  | <input type="checkbox"/> <b>BIOM 4580</b>  |
| <input type="checkbox"/> <b>BIOL 2480*</b> | <input type="checkbox"/> <b>BIOM 3581 (A&amp;B)†</b> | <input type="checkbox"/> <b>BIOM 4530</b>  | <input type="checkbox"/> <b>BIOM 4590</b>  |
| <input type="checkbox"/> <b>BIOM 3070</b>  | <input type="checkbox"/> <b>BIOM 3750</b>            | <input type="checkbox"/> <b>BIOM 4540*</b> | <input type="checkbox"/> <b>BIOM 4904†</b> |
| <input type="checkbox"/> <b>BIOM 3200*</b> | <input type="checkbox"/> <b>BIOM 4008</b>            | <input type="checkbox"/> <b>BIOM 4550</b>  | <input type="checkbox"/> <b>BIOL 4904†</b> |
| <input type="checkbox"/> <b>BIOM 3400*</b> | <input type="checkbox"/> <b>BIOM 4440*</b>           | <input type="checkbox"/> <b>BIOM 4560</b>  | <input type="checkbox"/> <b>CHEM 4900†</b> |
| <input type="checkbox"/> <b>BIOM 3540</b>  | <input type="checkbox"/> <b>BIOL 4450*</b>           |                                            |                                            |

**\*\*Must Choose 4 courses from the following Other Science (Chem/Bio/Biochem/Phys) Options:**

- |                                           |                                           |                                           |                                           |
|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> <b>CHEM 2200</b> | <input type="checkbox"/> <b>CHEM 3210</b> | <input type="checkbox"/> <b>BIOC 3030</b> | <input type="checkbox"/> <b>BIOC 4020</b> |
| <input type="checkbox"/> <b>CHEM 2310</b> | <input type="checkbox"/> <b>BIOL 2050</b> | <input type="checkbox"/> <b>BIOC 3110</b> | <input type="checkbox"/> <b>BIOC 4030</b> |
| <input type="checkbox"/> <b>CHEM 2500</b> | <input type="checkbox"/> <b>BIOL 2142</b> | <input type="checkbox"/> <b>BIOC 3140</b> | <input type="checkbox"/> <b>BIOC 4050</b> |
| <input type="checkbox"/> <b>CHEM 2510</b> | <input type="checkbox"/> <b>BIOL 3571</b> | <input type="checkbox"/> <b>BIOC 3310</b> | <input type="checkbox"/> <b>PHYS 3700</b> |
|                                           |                                           | <input type="checkbox"/> <b>BIOC 4010</b> |                                           |

†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:

- |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                        |
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| <input type="checkbox"/> <b>BIOL 1101</b> – Cell Biology<br><input type="checkbox"/> <b>BIOL 1111</b> – Biological Diversity<br><input type="checkbox"/> <b>BIOL 2040</b> – Human Physiology I<br><input type="checkbox"/> <b>BIOL 2071</b> – Intro Microbiology & Tech. | <input type="checkbox"/> <b>BIOL 2111</b> – Genetics<br><input type="checkbox"/> <b>BIOM 2131</b> – Intro Molecular Biology<br><input type="checkbox"/> <b>BIOM 3500</b> – Molecular Cell Biology<br><input type="checkbox"/> <b>BIOM 3530</b> – Advanced Cell Biology |
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### CORE COURSES (B) - BIOMEDICAL SCIENCES COURSES:

**Total 8 Courses**

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

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| <input type="checkbox"/> <b>BIOM 2021</b> – Human Anatomy<br><input type="checkbox"/> <b>BIOM 2400</b> – Cellular and Molecular Neuroscience<br><input type="checkbox"/> <b>BIOL 2480</b> – Principles of Neuroscience<br><input type="checkbox"/> <b>BIOM 3070</b> – Medical Microbiology<br><input type="checkbox"/> <b>BIOM 3200</b> – Systems Neuroscience<br><input type="checkbox"/> <b>BIOM 3400</b> – Neurobiology of the Synapse<br><input type="checkbox"/> <b>BIOM 3540</b> – Immunology<br><input type="checkbox"/> <b>BIOM 3550</b> – Embryology<br><input type="checkbox"/> <b>BIOM 3560</b> – Homeostasis in Human Physiology<br><input type="checkbox"/> <b>BIOM 3581 (A &amp; B)</b> – Biotechnology Laboratory<br><input type="checkbox"/> <b>BIOM 3750</b> – Cancer Undergraduate Research Education | <input type="checkbox"/> <b>BIOM 4008</b> – Special Topics in Biomedical Sciences<br><input type="checkbox"/> <b>BIOM 4440</b> – Neurophysiology<br><input type="checkbox"/> <b>BIOL 4450</b> – Behavioural Neurobiology<br><input type="checkbox"/> <b>BIOM 4510</b> – Stem Cells<br><input type="checkbox"/> <b>BIOM 4530</b> – Biology of Cell Transformation<br><input type="checkbox"/> <b>BIOM 4540</b> – Regenerative Neurobiology and Disease<br><input type="checkbox"/> <b>BIOM 4550</b> – Develop. Signaling & Develop. Genetics<br><input type="checkbox"/> <b>BIOM 4560</b> – Molecular Biotechnology<br><input type="checkbox"/> <b>BIOM 4570</b> – Intro Genomics: Data collect. & Bioinformatics<br><input type="checkbox"/> <b>BIOM 4580</b> – Nutrition: Cell & Mol Mechanisms in the gut, brain &..<br><input type="checkbox"/> <b>BIOM 4590</b> – Epigenetics<br><input type="checkbox"/> <b>BIOM 4904</b> – Undergrad Research Biomedical Sciences<br><input type="checkbox"/> <b>BIOL 4904</b> – Undergraduate Research in Biology<br><input type="checkbox"/> <b>CHEM 4900</b> – Research |
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\* **BIOM-2400** or \* **BIOL-2480** is the prerequisite required for BIOM-3200, BIOM-3400, BIOM-4440, BIOM-4540 and BIOL-4450

### CORE COURSES (C) - CHEMISTRY & BIOCHEM: Total 6 Courses

Complete ALL of the following:

- |                                                                                                                                                                                                                         |                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> <b>BIOC 2010</b> – Organic Chem. of Biomolecules<br><input type="checkbox"/> <b>BIOC 3100</b> – Metabolism I<br><input type="checkbox"/> <b>BIOC 3130</b> – Protein and Nucleic Acid Chemistry | <input type="checkbox"/> <b>CHEM 1100</b> – General Chemistry I<br><input type="checkbox"/> <b>CHEM 1110</b> – General Chemistry II<br><input type="checkbox"/> <b>CHEM 2300</b> – Intro Organic Chemistry I |
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### OTHER SCIENCE (Chem/Bio/Biochem/Phys) (E) COURSES:

**Total 4 Courses**

Complete 4 of the following:

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <input type="checkbox"/> <b>CHEM 2200</b> – Analytical Chemistry<br><input type="checkbox"/> <b>CHEM 2310</b> – Intro Organic Chemistry II<br><input type="checkbox"/> <b>CHEM 2500</b> – Intro Inorganic Chemistry I<br><input type="checkbox"/> <b>CHEM 2510</b> – Intro Inorganic Chemistry II<br><input type="checkbox"/> <b>CHEM 3210</b> – Princ. of Instrumental Analysis<br><input type="checkbox"/> <b>BIOL 2050</b> – Human Physiology II<br><input type="checkbox"/> <b>BIOL 2142</b> – Principles of Evolution | <input type="checkbox"/> <b>BIOL 3571</b> – Animal Cells and Tissues<br><input type="checkbox"/> <b>BIOC 3030</b> – Natural Health Products<br><input type="checkbox"/> <b>BIOC 3110</b> – Metabolism II<br><input type="checkbox"/> <b>BIOC 3140</b> – Protein and Enzyme Engineering<br><input type="checkbox"/> <b>BIOC 3310</b> – Pharmacology for Health Sciences<br><input type="checkbox"/> <b>BIOC 4010</b> – Bioinformatics/Genomics/Proteomics<br><input type="checkbox"/> <b>BIOC 4020</b> – Lipids, Lipoproteins, and Signaling<br><input type="checkbox"/> <b>BIOC 4030</b> – Enzymology and Biotechnology<br><input type="checkbox"/> <b>BIOC 4050</b> – Drug Design<br><input type="checkbox"/> <b>PHYS 3700</b> – Intro to Medical Physics |
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### CORE COURSES (D) - MATH COURSES: Total 2 Courses

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

### CORE COURSES (D) PHYSICS PAIR: Total 2 Courses

Complete 1 PAIR of the following:

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

### OTHER REQUIREMENTS (F, G): Total 10 courses

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