BSc Honours Biochemistry and Biomedical Sciences (Health Stream)

Minimum Requirements for Graduation: GPA Cumulative Average 60% and Major Average 70%

RECOMMENDED COURSE SEQUENCE

Year 1: Ten Courses Including:

Fall Semester:

- ❑ **BIOL 1101** – Cell Biology
- ❑ **CHEM 1100** – General Chemistry I
- ❑ **MATH 1720** – Differential Calculus
- ❑ **PHYS 1400** – Introductory Physics I
- ❑ _____ Any Arts/Social Science Course

Winter Semester:

- ❑ **BIOL 1111** – Biological Diversity
- ❑ **CHEM 1110** – General Chemistry II
- ❑ **MATH 1730 –** Integral Calculus
- ❑ **PHYS 1410** – Introductory Physics II
- ❑ **STAT 2910 –** Statistics for the Sciences

Year 2: Ten Courses Including:

- ❑ **BIOL 2040 –** Human Physiology I
- ❑ **BIOL 2111** – Genetics
- ❑ **CHEM 2300 –** Intro Organic Chemistry I
- ❑ _____ Any Arts/Social Science Course
- ❑ _____ Any Arts/Social Science Course

- ❑ **BIOC 2010 –** Organic Chem. of Biomolecules
- ❑ **BIOM 2131 –** Introductory Molecular Biology
- ❑ **BIOL 2050 –** Human Physiology II
- ❑ **BIOL 2071 –** Intro Microbiology & Techniques
- ❑ **BIOL 2480 –** Principles of Neuroscience

Year 3: Ten Courses Including:

- ❑ **BIOC 3100 –** Metabolism I
- ❑ **BIOM or BIOC 3581* –** Biotech Lab (A-Semester 1)
- ❑ **BIOM 2021 –** Anatomy (offered in Fall, Winter & Summer)
- ❑ **CHEM 2200 –** Analytical Chemistry
- ❑ _____ Any Arts/Social Science Course

- ❑ **BIOC 3130 –** Protein and Nucleic Acid Chemistry
- ❑ **BIOM or BIOC 3581* –** Biotech Lab (B-Semester 2)
- ❑ **BIOM 3500 –** Molecular Cell Biology OR **BIOM 3530 –** Advanced Cell Biology (CHOOSE 1)
- ❑ **CHEM-2310 –** Intro Organic Chemistry II
- ❑ _____ Any Area of Study

Year 4: Ten Courses Including:

Choose **6** of the following courses:
(**MUST include 2 courses at 4000 level**)

- ❑ **BIOC 3030**
- ❑ **BIOC 3110**
- ❑ **BIOC 3310**
- ❑ **BIOC 4010**
- ❑ **BIOC 4020**
- ❑ **BIOC 4030**
- ❑ **BIOC 4050**
- ❑ **BIOL 3571**
- ❑ **BIOL 4481**
- ❑ **BIOL 4904* (2 courses)**
- ❑ **BIOM 3070**
- ❑ **BIOM 3071**
- ❑ **BIOM 3400**
- ❑ **BIOM 3500**
- ❑ **BIOM 3530**
- ❑ **BIOM 3540**
- ❑ **BIOM 3550**
- ❑ **BIOM 3560**
- ❑ **BIOM 3750**
- ❑ **BIOM 4008**
- ❑ **BIOM 4440**
- ❑ **BIOM 4510**
- ❑ **BIOM 4530**
- ❑ **BIOM 4540**
- ❑ **BIOM 4550**
- ❑ **BIOM 4560**
- ❑ **BIOM 4590**
- ❑ **BIOM 4904* (2 courses)**
- ❑ **PHYS 3700**
- ❑ **CHEM 2400**
- ❑ **CHEM 3210**
- ❑ **CHEM 3300**
- ❑ **CHEM 3310**
- ❑ **CHEM 4308**
- ❑ **CHEM 4520**
- ❑ **CHEM 4680**
- ❑ **CHEM 4900* (2 courses)**

- ❑ **4** courses from Any Area of study _____ _____ _____ _____

* Delivered over two semesters and counts for two courses (6 credits). BIOM 4904/BIOL 4904 requires a 70% major GPA, and 60% cumulative GPA. CHEM 4900 requires a 70% major GPA, and 70% cumulative GPA.

CORE COURSES SUMMARY

CORE COURSES (A1) – Total 17 Courses

Complete **ALL** of the following:

- ❑ **BIOC 2010** – Organic Chem. of Biomolecules
- ❑ **BIOC 3100** – Metabolism I
- ❑ **BIOC 3130** – Protein & Nucleic Acid Chem.
- ❑ **BIOL 1101** – Cell Biology
- ❑ **BIOL 1111** – Biological Diversity
- ❑ **BIOL 2040** – Human Physiology I
- ❑ **BIOL 2050** – Human Physiology II
- ❑ **BIOL 2071** – Intro Microbiology & Tech.
- ❑ **BIOL 2111** – Genetics
- ❑ **BIOL 2480** – Principles of Neuroscience
- ❑ **BIOM 2021** – Anatomy
- ❑ **BIOM 2131** – Intro Molecular Biology
- ❑ **CHEM1100** – General Chemistry I
- ❑ **CHEM 1110** – General Chemistry II
- ❑ **CHEM 2200** – Analytical Chemistry
- ❑ **CHEM 2300** – Intro Organic Chem. I
- ❑ **CHEM 2310** – Intro Organic Chem. II

CORE COURSES (A2) – Total 2 Courses

Complete **1** of the following pair:

- ❑ **BIOM 3581A & 3581B** OR **BIOC 3581A & 3581B** – Biotechnology

CORE COURSES (A3) – Total 1 Course

Complete **1** of the following:

- ❑ **BIOM 3500** – Molecular Cell Biology
- ❑ **BIOM 3530** – Advanced Cell Biology

CORE COURSES (B) – Total 6 courses

Complete **6** of the following (at **least 2 courses at 4000 level)**:

- ❑ **BIOC 3030** – Natural Health Products & Their Mech. of Action
- ❑ **BIOC 3110** – Metabolism II
- ❑ **BIOC 3310** – Pharmacology
- ❑ **BIOC 4010** – Bioinformatics/Genomics/Proteomics
- ❑ **BIOC 4020** – Lipids, Lipoproteins Signaling
- ❑ **BIOC 4030** – Enzymology and Biotechnology
- ❑ **BIOC 4050** – Drug Design
- ❑ **BIOL 3571** – Animal Cells and Tissues
- ❑ **BIOL 4481** – Excitable Cells
- ❑ **BIOL 4904*** – Undergrad Research in Biology (2 courses)
- ❑ **BIOM 3070** – Medical Microbiology OR **BIOM 3071** – Medical Micro. And Techniques (cannot take both)
- ❑ **BIOM 3400** – Neurobiology of the Synapse
- ❑ **BIOM 3500** – Molecular Cell Biology
- ❑ **BIOM 3530** – Advanced Cell Biology
- ❑ **BIOM 3540** – Immunology
- ❑ **BIOM 3550** – Embryology
- ❑ **BIOM 3560** – Homeostasis in Human Physiology
- ❑ **BIOM 3750** – Cancer Undergraduate Research Education
- ❑ **BIOM 4008** – Special Topics
- ❑ **BIOM 4440** – Neurophysiology
- ❑ **BIOM 4510** – Stem Cells
- ❑ **BIOM 4530** – Biology of Cell Transformation
- ❑ **BIOM 4540** – Regenerative Biology and Disease
- ❑ **BIOM 4550** – Devel. Signal. & Devel. Genetics
- ❑ **BIOM 4560** – Molecular Biotechnology
- ❑ **BIOM 4590** – Epigenetics
- ❑ **BIOM 4904*** - Undergrad Research Biomedical Sciences (2 courses)
- ❑ **PHYS 3700** – Intro to Medical Physics
- ❑ **CHEM 2400** – Intro. Physical Chemistry
- ❑ **CHEM 3210** – Princ. of Instrumental Analysis
- ❑ **CHEM 3300** – Spectroscopic Structure Identification
- ❑ **CHEM 3310** – Intermediate Organic Chemistry
- ❑ **CHEM 4308** – Special Topics in Organic Chemistry
- ❑ **CHEM 4520** – Free Radicals in Chemistry & Biology
- ❑ **CHEM 4680** – Applied Analytic Laboratory
- ❑ **CHEM 4900*** – Research (2 courses)

ADDITIONAL COURSES – Total 14 courses

Complete **ALL** of the following **(C)**:

- ❑ **MATH 1720** – Differential Calculus
- ❑ **MATH 1730** – Integral Calculus
- ❑ **PHYS 1400** – Intro. Physics I
- ❑ **PHYS 1410** – Intro. Physics II
- ❑ **STAT 2910** – Statistics for the Sciences

❑ **Arts/Languages or Social Sciences (D) –** Choose **4** Courses

At least one from Arts and one from Social Science

Note: ECON XXXX can count as a Social Science course

_____ _____ _____ _____

❑ **Any Area of Study (E) –** Choose **5** Courses

_____ _____ _____ _____ _____

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 an ENGL course (Art/Language)