Dept. of Biomedical Sciences
University of Windsor

Fall 2022/Winter 2023

BSc Honours Biochemistry and Biomedical Sciences (Health Stream)

****ENTERED Program IN or AFTER FALL 2020****

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

RECOMMENDED COURSE SEQUENCE

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 1400** – Introductory Physics I ❑ _____ Any Arts/Social Science Course	❑ **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 ❑ **BIOL 2071 –** Intro Microbiology & Techniques ❑ **CHEM 2300 –** Intro Organic Chemistry I ❑ _____ Any Arts/Social Science Course	❑ **BIOC 2010 –** Organic Chem. of Biomolecules ❑ **BIOL 2050 –** Human Physiology II ❑ **BIOL 2480 –** Principles of Neuroscience ❑ **BIOM 2131 –** Introductory Molecular Biology ❑ _____ Any Arts/Social Science Course
Year 3: Ten Courses Including: ❑ **BIOC 3100 –** Metabolism I ❑ **BIOC or BIOM 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 ❑ **BIOC or BIOM 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 3310**	❑ **BIOM 3560**	❑ **BIOC 3030**	❑ **BIOM 4540**
❑ **BIOC 4010**	❑ **BIOM 3750**	❑ **BIOC 3110**	❑ **BIOM 4550**
❑ **BIOC 4020**	❑ **BIOM 4008**	❑ **BIOC 4030**	❑ **BIOM 4560**
❑ **BIOC 4050**	❑ **BIOM 4440**	❑ **BIOL 4481**	❑ **BIOM 4590**
❑ **BIOL 3571**	❑ **BIOM 4904* (2 courses)**	❑ **BIOM 3070**	❑ **CHEM 3210**
❑ **BIOM 3400**	❑ **CHEM 2400**	❑ **BIOM 3071**	❑ **CHEM 3310**
❑ **BIOM 3500**	❑ **CHEM 3300**	❑ **BIOM 3530**	❑ **CHEM 4308**
❑ **BIOM 3540**	❑ **CHEM 4900* (2 courses)**	❑ **BIOM 4510**	❑ **CHEM 4520**
❑ **BIOM 3550 (fall or winter)**	❑ **PHYS 3700**	❑ **BIOM 4530**	❑ **CHEM 4680**

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

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

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CORE COURSES SUMMARY

CORE COURSES (A) – 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 (B) – Total 2 Courses

Complete **1** of the following pair:

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

CORE COURSES (C) – Total 1 Course

Complete **1** of the following:

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

CORE COURSES (F) – 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
- ❑ **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 (2 courses)
- ❑ **CHEM 2400** – Intro. Physical Chemistry
- ❑ **CHEM 3300** – Spectroscopic Structure Identification
- ❑ **CHEM 3310** – Intermediate Organic Chemistry
- ❑ **CHEM 3210** – Princ. of Instrumental Analysis
- ❑ **CHEM 4308** – Special Topics in Organic Chemistry
- ❑ **CHEM 4520** – Free Radicals in Chemistry & Biology
- ❑ **CHEM 4680 –** Applied Analytic Laboratory
- ❑ **CHEM 4900*** – Research (2 courses)
- ❑ **PHYS 3700** – Intro to Medical Physics

ADDITIONAL COURSES – Total 14 courses

Complete **ALL** of the following:

- ❑ **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 –** 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 –** Choose **5** Courses

_____ _____ _____ _____ _____

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).