# BIOCHEMISTRY (HONOURS & MAJOR) – CO-OP PROGRAM

## Skills acquired by biochemistry students during their studies

| Work term | Honours in biochemistry | | Major in biochemistry* | |
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| | Typical education | Typical skills | Typical education | Typical skills |
| **Work term I**<br>2nd year completed<br>Work under supervision with initial training | • Basics in biochemical elements<br>• Basics in molecular and cellular biology<br>• Basics in chemistry: organic, inorganic, physical et analytical<br>• Basics in statistics<br>• Basics in laboratory techniques in chemistry, biochemistry, and molecular biology<br>• Report writing | • Basic laboratory techniques: physical measurements, dosage of biological and biochemical components, volumetric analysis, solution preparation, product characterization and extraction<br>• Instrumentation analyses: plate readers, optical density, microscopy fluorescence, spectrophotometry, electrophoresis, chromatography, etc.<br>• Computer software skills: word processor, calculations and statistics, data presentation and results, email, and web search engines | • Basics in biochemical elements<br>• Basics in molecular and cellular biology<br>• Basics in chemistry: organic, inorganic et analytical<br>• Basics in statistics<br>• Basics in laboratory techniques in chemistry, biochemistry, and molecular biology<br>• Report writing | • Basic laboratory techniques: physical measurements, dosage of biological and biochemical components, volumetric analysis, solutions preparation, product characterization, extraction<br>• Instrumentation analyses: plate readers, optical density, microscopy fluorescence, spectrophotometry, electrophoresis, chromatography, etc.<br>• Computer software skills: word processor, calculations and statistics, data presentation and results, email, and web search engines |
| **Work term II**<br>3rd year completed<br>Work under periodic supervision | • Basics in metabolism, protein biology, microbiology, and molecular biology<br>• Hands-on experience in biochemistry and microbiology laboratory techniques | • Basic techniques in microbiology (bacteria cultures, staining, etc.) and in biochemistry (electrophoresis, biochemical assays, extraction and purification of biological material, etc.)<br>• Technical analysis of biochemical elements (DNA, amino acids, fatty acids, sugars, etc.) | • Basics in metabolism, protein biology, microbiology, and molecular biology<br>• Hands-on experience in biochemistry and microbiology laboratory techniques<br>• Courses from minor program (humanities or sciences) | • Basic techniques in microbiology (bacteria cultures, staining, etc.) and in biochemistry (electrophoresis, biochemical assays, extraction and purification of biological material, etc.)<br>• Technical analysis of biochemical elements (DNA, amino acids, fatty acids, sugars, etc.) |

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| **Work term III**<br>4th year completed<br>Work with occasional supervision | • Advanced concepts in biochemistry, molecular and cellular biology, OMICS, and statistics<br>• Experience and techniques in advanced biochemistry laboratories, written reports and oral presentations of research studies (in front of departmental staff and students) | • Advanced skills in molecular, cellular and biochemical processes (electrophoresis, immunoblotting, purification, and characterization of biochemical elements such as proteins, nucleic acids, and lipids)<br>• Presentation and data analysis of experimental results and compilation<br>• DNA manipulation, cloning and molecular analyses | • Advanced concepts in biochemistry, molecular and cellular biology, OMICS, and statistics<br>• Experience and techniques in advanced biochemistry laboratories, written reports and oral presentations of research studies (in front of departmental staff and students)<br>• Courses from minor program (humanities or sciences) | • Advanced skills in molecular, cellular and biochemical processes (electrophoresis, immunoblotting, purification, and characterization of biochemical elements such as proteins, nucleic acids, and lipids)<br>• Presentation and data analysis of experimental results and compilation<br>DNA manipulation, cloning and molecular analyses |

**These students take a minor in another subject, generally in sciences; their background is diversified (multidisciplinary)*