

ANATOMY AND CELL BIOLOGY MAJOR (B.SC.) (67 CREDITS)

Offered by: Anatomy and Cell Biology (Faculty of Science)

Degree: Bachelor of Science

Program credit weight: 67

Program Description

The B.Sc.; Major in Anatomy and Cell Biology focuses on the fundamentals of biomedical science, with a strong foundation in cell and molecular biology, as well as the essential concepts of human anatomy. The program includes a wide range of biomedical science disciplines such as experimental medicine, microbiology and immunology, pharmacology and physiology.

Degree Requirements — B.Sc.

This program is offered as part of a Bachelor of Science (B.Sc.) degree.

To graduate, students must satisfy both their program requirements and their degree requirements.

- The program requirements (i.e., the specific courses that make up this program) are listed under the Course Tab (above).
- The degree requirements—including the mandatory Foundation program, appropriate degree structure, and any additional components—are outlined on the Degree Requirements page.

Students are responsible for ensuring that this program fits within the overall structure of their degree and that all degree requirements are met. Consult the Degree Planning Guide on the SOUSA website for additional guidance.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Required Courses (43 credits)

Expand allContract all

Course	Title	Credits
ANAT 212	Molecular Mechanisms of Cell Function.	3
ANAT 214	Systemic Human Anatomy.	3
ANAT 261	Introduction to Dynamic Histology.	4
ANAT 262	Introductory Molecular and Cell Biology.	3
BIOL 200	Molecular Biology.	3
BIOL 202	Basic Genetics.	3
BIOL 301	Cell and Molecular Laboratory.	4
CHEM 212	Introductory Organic Chemistry 1. ¹	4
CHEM 222	Introductory Organic Chemistry 2. ¹	4
MIMM 214	Introductory Immunology: Elements of Immunity.	3
PHGY 209	Mammalian Physiology 1.	3
PHGY 210	Mammalian Physiology 2.	3

¹ Students who have taken the equivalent of CHEM 212 Introductory Organic Chemistry 1., CHEM 222 Introductory Organic Chemistry 2., and/or MATH 203 Principles of Statistics 1. in CEGEP and receive a course exemption upon admission are exempt from the program requirement(s) and must replace these credits with elective course credits to satisfy the total credit requirement for their degree.

Select 3 credits of the following:

Expand allContract all

Course	Title	Credits
BIOL 373	Biometry.	3
MATH 203	Principles of Statistics 1. ¹	3
PSYC 204	Introduction to Psychological Statistics.	3

¹ Students who have taken the equivalent of CHEM 212 Introductory Organic Chemistry 1., CHEM 222 Introductory Organic Chemistry 2., and/or MATH 203 Principles of Statistics 1. in CEGEP and receive a course exemption upon admission are exempt from the program requirement(s) and must replace these credits with elective course credits to satisfy the total credit requirement for their degree.

Complementary Courses (24 credits)

Complementary courses are selected as follows with a minimum of 6 credits at the 400 level or higher:

12 credits of advanced anatomy courses (AAC) selected from:

Expand allContract all

Course	Title	Credits
ANAT 314	Human Musculoskeletal Anatomy .	3
ANAT 321	Circuitry of the Human Brain.	3
ANAT 322	Neuroendocrinology.	3
ANAT 365	Cellular Trafficking.	3
ANAT 381	Experimental Embryology.	3
ANAT 416	Development, Disease and Regeneration.	3
ANAT 458	Membranes and Cellular Signaling.	3
ANAT 514	Advanced Human Anatomy Laboratory.	3
ANAT 541	Cell and Molecular Biology of Aging.	3
ANAT 565	Diseases-Membrane Trafficking.	3
NEUR 310	Cellular Neurobiology.	3

12 credits of biologically oriented courses (BOC) selected from:

Expand allContract all

Course	Title	Credits
ANAT 314	Human Musculoskeletal Anatomy .	3
ANAT 321	Circuitry of the Human Brain.	3
ANAT 322	Neuroendocrinology.	3
ANAT 365	Cellular Trafficking.	3
ANAT 381	Experimental Embryology.	3
ANAT 416	Development, Disease and Regeneration.	3

ANAT 458	Membranes and Cellular Signaling.	3	PHAR 303	Principles of Toxicology.	3
ANAT 541	Cell and Molecular Biology of Aging.	3	PHAR 562	Neuropharmacology.	3
ANAT 565	Diseases-Membrane Trafficking.	3	PHAR 563	Endocrine Pharmacology.	3
BIOC 311	Metabolic Biochemistry.	3	PHGY 311	Channels, Synapses and Hormones.	3
BIOC 312	Biochemistry of Macromolecules.	3	PHGY 312	Respiratory, Renal, and Cardiovascular Physiology.	3
BIOC 450	Protein Structure and Function.	3	PHGY 313	Blood, Gastrointestinal, and Immune Systems Physiology.	3
BIOC 458	Membranes and Cellular Signaling.	3	PHGY 314	Integrative Neuroscience.	3
BIOC 503	Biochemistry of Immune Diseases.	3	PHGY 451	Advanced Neurophysiology.	3
BIOL 300	Molecular Biology of the Gene.	3	PHGY 502	Exercise Physiology.	3
BIOL 303	Developmental Biology.	3	PHGY 513	Translational Immunology.	3
BIOL 306	Neural Basis of Behaviour.	3	PHGY 515	Blood-Brain Barrier in Health and Disease.	3
BIOL 313	Eukaryotic Cell Biology.	3	PHGY 516	Physiology of Blood .	3
BIOL 314	Molecular Biology of Cancer.	3	PHGY 518	Artificial Cells.	3
BIOL 320	Evolution of Brain and Behaviour.	3	PHGY 556	Topics in Systems Neuroscience.	3
BIOL 518	Advanced Topics in Cell Biology.	3	PSYT 500	Advances: Neurobiology of Mental Disorders.	3
BIOL 520	Gene Activity in Development.	3			
BIOL 524	Topics in Molecular Biology.	3			
BIOL 532	Developmental Neurobiology Seminar.	3			
BIOL 544	Genetic Basis of Life Span.	3			
BIOL 546	Genetics of Model Systems.	3			
BIOL 551	Principles of Cellular Control.	3			
BIOL 588	Advances in Molecular/Cellular Neurobiology.	3			
BIOT 505	Selected Topics in Biotechnology.	3			
COMP 204	Computer Programming for Life Sciences.	3			
EXMD 401	Physiology and Biochemistry Endocrine Systems.	3			
EXMD 502	Advanced Endocrinology 1.	3			
EXMD 503	Advanced Endocrinology 02.	3			
EXMD 504	Biology of Cancer.	3			
EXMD 506	Advanced Applied Cardiovascular Physiology.	3			
EXMD 507	Advanced Applied Respiratory Physiology.	3			
EXMD 508	Advanced Topics in Respiration.	3			
HGEN 575	Human Biochemical Genetics.	3			
MIMM 314	Intermediate Immunology.	3			
MIMM 323	Microbial Physiology.	3			
MIMM 324	Fundamental Virology.	3			
MIMM 387	The Business of Science.	3			
MIMM 413	Parasitology.	3			
MIMM 414	Advanced Immunology.	3			
MIMM 465	Bacterial Pathogenesis.	3			
MIMM 466	Viral Pathogenesis.	3			
MIMM 509	Inflammatory Processes.	3			
NEUR 310	Cellular Neurobiology.	3			
PATH 300	Human Disease.	3			
PHAR 300	Drug Action.	3			
PHAR 301	Drugs and Disease.	3			