LIFE SCIENCES – MAJOR (SCIENCE) – BACHELOR OF SCIENCE (HONOURS)

LISC-M-BSH

Subject: Administered by the Associate Dean, (Life Sciences and Biochemistry)
Plan: Consists of 72.00 units as described below.
Program: The Plan, with sufficient electives to total 120.00 units, will lead to a Bachelor of Science (Honours) Degree.

Note: Requirements for this program have been modified. Please consult the 2023-2024 (https://queensu-ca-public.courseleaf.com/archive/2023-2024/)*Calendar* for the previous requirements.

Code	Title	Units
1. Core		
A. Complete the following:		
BIOL 102	Fundamentals of Biology: Molecular and Cell Biology	3.00
BIOL 103	Fundamentals of Biology: Organisms to Ecosystems	3.00
B. Complete 6.00 units from the following:		**6.00**
CHEM 109 & CHEM 110	General Chemistry I: From Atoms to Matter and General Chemistry II: Thermodynamics and Kinetics	
or		
CHEM 112	General Chemistry	
C. Complete the following:		
CISC 151	Elements of Computing with Data Analytics	3.00
D. Complete 3.00 units from the following:		**3.00**
BCHM 102	Introduction to Biochemistry	
PATH 120	Understanding Human Disease in the 21st Century	
E. Complete the following:		
BCHM 218	Molecular Biology	3.00
F. Complete 3.00 units from the following:		**3.00**
BIOL 243	Introduction to Statistics	
STAM 200	Introduction to Statistics	
STAT 263	Introduction to Statistics	
G. Complete 3.00 units from the following:		**3.00**
MICR 221	Fundamental Microbiology	
MICR 271	Introduction to Microbiology	
H. Complete the following:		
CHEM 281	General Organic Chemistry I (with Virtual Laboratory)	3.00
CHEM 282	General Organic Chemistry II	3.00
I. Complete the following:		
PHGY 215	Principles of Mammalian Physiology I	3.00
PHGY 216	Principles of Mammalian Physiology II	3.00
2. Option		
A. Complete 3.00 units from the following course list:		**3.00**
LISC_List_A at the 400-level or above		
B. Complete 15.00 units from the following course list:		**15.00**
LISC_List_A at the 300-level or above		
C. Complete 3.00 units from the following course list:		**3.00**
LISC_List_A at the 200-level or above		
D. Complete 6.00 units from the following course list:		**6.00**
LISC_List_A		
3. Supporting		
A. Complete the following:		
PHYS 115	Introduction to Physics I	3.00
B. Complete the following:		
MATH 130	Mathematics for Biochemistry and Life Sciences	3.00
Electives		
Elective Courses		48.00
Total Units		**120.00**

4. Additional Requirements

A. No more than 15.00 units chosen from LISC_List_A may be in BIOL or PSYC.

5. Substitutions

A. Students who have completed PHYS 104, PHYS 106, or PHYS 118 may count 3.00 units towards Supporting **3.A.** The other 3.00 units will be counted towards the student's elective requirement.

B. Students who have completed MATH 120 or MATH 121, may count 3.00 units towards Supporting **3.B.** The other 3.00 units will be counted towards the student's elective requirement.

6. Notes

A. Students wishing to take upper-year PSYC courses as options should take PSYC 100 as an elective.

B. Students wishing to take 300- and 400-level BIOL courses as options should review the prerequisites for these courses. Some upper year BIOL courses require BIOL 205 as a prerequisite which is an option under **2.C.**

C. Students in the LISC Specialization Plan will be given priority for all 499 courses (ANAT 499, CANC 499, EPID 499, MICR 499, NSCI 499, PATH 499, PHAR 499, and REPD 499). Permission to take any of these courses must be approved by the Associate Dean (Life Sciences and Biochemistry).

D. A maximum of 6.00 units from courses offered by other Faculties and Schools may be counted toward the program and/or Plan requirements. This includes courses in COMM, LAW, NURS and courses offered by Smith Engineering.

Life Sciences Course Lists

The following lists contain courses offered through other Departments. In accordance with Academic Regulation **2.6** (Access to Classes), students do not have enrolment priority in all of these courses. Access to these courses may only be made available during the Open Enrolment period, and then only if space permits.

LISC_List_A

Code	Title	Units
Options in the Life Science Major Plan		
ANAT, BCHM, CANC, CRSS, DDHT, DISC, EPID, LISC, MICR, NSCI, PATH, PHAR, PHGY, and REPD [1]		
BIOL 205	Mendelian and Molecular Genetics	3.00
BIOL 321	Animal Behaviour	3.00
BIOL 322	Environmental Physiology of Animals	3.00
BIOL 330	Cell Biology	3.00
BIOL 331	Analytical Genomics	3.00
BIOL 334	Comparative Biochemistry	3.00
BIOL 339	Animal Physiology	3.00
BIOL 350	Evolution and Human Affairs	3.00
BIOL 369	Sex and Evolution	3.00
BIOL 401	Experimental Approaches to Animal Physiology	3.00
BIOL 403	Experimental Techniques in Biology	3.00
BIOL 404	Techniques in Molecular Biology	3.00
BIOL 430	Molecular Genetics of Development	3.00
BIOL 441	Molecular Genetics	3.00
CHEM 213	Introduction to Chemical Analysis	3.00
CHEM 221	Material, Solutions, and Interfaces	3.00
CHEM 222	Methods of Structure Determination	3.00
CISC 271	Linear Data Analysis	3.00
HLTH 323	Epidemiology	3.00
HSCI 270	Fundamentals of Health Research Methodology	3.00
HSCI 383	Advanced Research Methodologies	3.00
HSCI 483	Applied Qualitative Methods for Health Research	3.00
MATH 221	Vector Calculus	3.00
MATH 225	Ordinary Differential Equations	3.00
MATH 228	Complex Analysis	3.00
MATH 272	Applications of Numerical Methods	3.00
MATH 300	Modeling Techniques in Biology	3.00
PHYS 206	Dynamics	3.00
PHYS 216	Introduction to Astrophysics	3.00
PHYS 242	Relativity and Quanta	3.00
PSYC 100	Principles of Psychology	6.00
PSYC 236	Introduction to Clinical Psychology	3.00
PSYC 251	Developmental Psychology	3.00
PSYC 271	Brain and Behaviour I	3.00
PSYC 305	Introduction to Comparative Cognition	3.00
PSYC 323	Laboratory in Attention	3.00
PSYC 333	Human Sexuality	3.00
PSYC 353	Atypical Development	3.00
PSYC 355	Comparative Cognition: Cognitive Origins Laboratory	3.00
PSYC 360	The Neurobiology and Psychology of Sleep	3.00
PSYC 370	Brain and Behaviour II	3.00
PSYC 398	Selected Topics in Psychology I	3.00
PSYC 420	Advanced Topics in Cognitive Psychology	3.00
PSYC 422	Advanced Topics in Attention	3.00
PSYC 435	Advanced Topics in Clinical Psychology	3.00
PSYC 470	Advanced Topics in Behavioural Neuroscience	3.00
PSYC 471	Behavioural Pharmacology	3.00
PSYC 473	Neurobiology of Psychiatric Disorders	3.00

[1] The following courses cannot be used towards an Option requirement: ANAT 270, BCHM 270, MICR 270, PHAR 270/3.0*, PHGY 170, and any course numbered 499.