

BIOLOGY AND MATHEMATICS – SPECIALIZATION (SCIENCE) – BACHELOR OF SCIENCE (HONOURS)

Plans of study for students who were admitted to a Biology and Mathematics Specialization after May 1, 2016

BIMA-P-BSH

Subject: Administered by the Departments of Biology and Mathematics and Statistics.

Plan: Consists of 84.0 units as described below.

Program: The Plan, with sufficient electives to total of 120.0 units, will lead to a Bachelor of Science (Honours) Degree.

Requirements for this program have been modified.
Please consult the [2020-2021 Calendar](#) for the previous requirements.

| Code | Title | Units |
|--|---|-------|
| 1. Core | | |
| Biology: | | |
| A. Complete the following: | | 6.00 |
| BIOL 102 | Fundamentals of Biology: Molecular and Cell Biology | |
| BIOL 103 | Fundamentals of Biology: Organisms to Ecosystems | |
| B. Complete the following: | | 6.00 |
| CHEM 112 | General Chemistry | |
| C. Select 12.00 units from the following: | | 12.00 |
| BIOL 200 | Diversity Of Life | |
| BIOL 205 | Mendelian and Molecular Genetics | |
| BIOL 206 | Evolutionary Genetics | |
| BIOL 212 | Scientific Methods in Biology | |
| D. Complete the following: | | 3.00 |
| BIOL 300 | Ecology | |
| E. Select 3.00 units from the following: | | 3.00 |
| BIOL 334 | Comparative Biochemistry | |
| BIOL 339 | Animal Physiology | |
| BIOL 341 | Plant Physiology | |
| F. Complete 3.00 units from the following: | | 3.00 |
| BIOL 330 | Cell Biology | |
| Mathematics: | | |
| G. Select 6.00 units from the following: | | 6.00 |
| MATH 110 | Linear Algebra | |
| MATH 111 | Linear Algebra | |
| H. Select 6.00 units from the following: | | 6.00 |
| MATH 120 | Differential and Integral Calculus | |
| MATH 121 | Differential and Integral Calculus | |
| MATH 123 | Differential and Integral Calculus I | |

| | | |
|--|---------------------------------------|---------------|
| MATH 124 | Differential and Integral Calculus II | |
| I. Select 3.00 units from the following: | | 3.00 |
| MATH 221 | Vector Calculus | |
| MATH 280 | Advanced Calculus | |
| J. Select 3.00 units from the following: | | 3.00 |
| MATH 225 | Ordinary Differential Equations | |
| MATH 231 | Differential Equations | |
| K. Select 3.00 units from the following: | | 3.00 |
| STAT 252 | Introductory Applied Probability | |
| STAT 268 | Statistics and Probability I | |
| STAT 351 | Probability I | |
| L. Select 3.00 units from the following: | | 3.00 |
| BIOL 243 | Introduction to Statistics | |
| STAT 269 | Statistics and Probability II | |
| M. Complete the following: | | 6.00 |
| BIOM 300 | Modeling Techniques in Biology | |
| MATH 339 | Evolutionary Game Theory | |
| 2. Option | | |
| A. Select 6.00 units from the following: | | 6.00 |
| BIOL at the 300 level or above | | |
| BIOL_Sub_A | | |
| BIOL_Sub_B | | |
| B. BIOL | | 3.00 |
| C. Select 6.00 from the following: | | 6.00 |
| MATH at the 300 level or above | | |
| STAT at the 300 level or above | | |
| D. Select 6.00 units from the following: | | 6.00 |
| MATH | | |
| STAT | | |
| Electives | | |
| Elective Courses | | 36.00 |
| Total Units | | 120.00 |

3. Substitutions

A. BCHM 310/9.0 (or the combination of BCHM 315 Proteins and Enzymes and BCHM 316 Metabolism) may be substituted for 3.0 units from (BIOL 339 Animal Physiology or BIOL 341 Plant Physiology or BIOL 334 Comparative Biochemistry) with the remaining units applied toward Option Course requirements in the degree program.



B. Students registered in a BIOL Plan prior to May 1, 2016 may use BCHM 218 Molecular Biology as an alternative to BIOL 330 Cell Biology to satisfy requirement 1.F.

4. Note

A. A maximum of 6.0 units from courses offered by other Faculties and Schools may be counted toward the program and/or Plan Requirements. This includes courses in BMED, COMM, GLPH, LAW, NURS and courses in the Faculty of Engineering and Applied Science.

Biology and Mathematics Course Lists

The following lists contain courses offered through other Departments. In accordance with Academic Regulation 2.5 (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.

BIOL_Subs_A

| Code | Title | Units |
|------|-------|-------|
|------|-------|-------|

Biology Substitutions List A

| | | |
|--------------------------------|------------------------------|------|
| ANAT at the 300 level or above | | |
| BCHM at the 300 level or above | | |
| LISC at the 300 level or above | | |
| MICR 221 | Basic Microbiology | 3.00 |
| MICR 271 | Introduction to Microbiology | 3.00 |
| MICR at the 300 level or above | | |
| PATH at the 300 level or above | | |
| PHGY at the 300 level or above | | |

BIOL_Subs_B

| Code | Title | Units |
|------|-------|-------|
|------|-------|-------|

Biology Substitutions List B

| | | |
|--------------------------------|---|------|
| APSC 400 | Technology, Engineering & Management (TEAM) | 7.00 |
| CHEE 400 | Technology, Engineering & Management (TEAM) | 7.00 |
| CHEM at the 200 level or above | | |
| ENSC 301 | Environmental Assessment | 3.00 |
| ENSC 307 | Marine Environmental Issues | 3.00 |
| ENSC 320 | Wildlife Issues in a Changing World | 3.00 |
| ENSC 390 | Sustainability | 3.00 |
| ENSC 425 | Ecotoxicology | 3.00 |
| ENSC 471 | Environmental Analysis Methods | 3.00 |
| EPID 301 | Principles of Epidemiology | 3.00 |
| GEOL 337 | Paleontology | 3.00 |
| GEOL 466 | Isotopes and the Environment | 3.00 |

| | | |
|----------|--|------|
| GPHY 304 | Northern and Arctic Environments | 3.00 |
| GPHY 306 | Natural Environmental Change | 3.00 |
| GPHY 310 | Landscape Ecology | 3.00 |
| GPHY 314 | Climate Change | 3.00 |
| GPHY 315 | Advanced Field Measurements and their Analysis | 3.00 |
| GPHY 318 | Advanced Biogeography | 3.00 |
| GPHY 339 | Medical Geography | 3.00 |
| HLTH 323 | Epidemiology | 3.00 |
| PHAR 340 | Principles of General Pharmacology I | 3.00 |
| PHAR 370 | Fundamentals of Pharmacology and Therapeutics | 3.00 |
| PHIL 301 | Bioethics | 3.00 |
| PSYC 236 | Introduction to Clinical Psychology | 3.00 |
| PSYC 271 | Brain and Behaviour I | 3.00 |
| PSYC 370 | Brain and Behaviour II | 3.00 |
| PSYC 470 | Advanced Topics in Behavioural Neuroscience | 3.00 |
| STAT 353 | Probability II | 3.00 |