

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

## BIMA-P-BSH

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

**Plan:** Consists of 84.00 units as described below.

**Program:** The Plan, with sufficient electives to total of 120.00 units, will lead to a Bachelor of Science (Honours) Degree.

Code	Title	Units
<b>1. Core</b>		
– BIOLOGY CORE –		
<b>A. Complete the following:</b>		
BIOL 102	Fundamentals of Biology: Molecular and Cell Biology	3.00
BIOL 103	Fundamentals of Biology: Organisms to Ecosystems	3.00
<b>B. Complete the following:</b>		
CHEM 112	General Chemistry	6.00
<b>C. Complete the following:</b>		
BIOL 200	Diversity of Life	3.00
BIOL 205	Mendelian and Molecular Genetics	3.00
BIOL 206	Evolutionary Genetics	3.00
BIOL 212	Scientific Methods in Biology	3.00
<b>D. Complete the following:</b>		
BIOL 300	Ecology	3.00
<b>E. Complete 3.00 units from the following: 3.00</b>		
BIOL 334	Comparative Biochemistry	
BIOL 339	Animal Physiology	
BIOL 341	Plant Physiology	
<b>F. Complete the following:</b>		
BIOL 330	Cell Biology	3.00
– MATHEMATICS CORE –		
<b>G. Complete 6.00 units from the following: 6.00</b>		
MATH 110	Linear Algebra	
MATH 111	Linear Algebra	
<b>H. Complete 6.00 units from the following: 6.00</b>		
MATH 120	Differential and Integral Calculus	
MATH 121	Differential and Integral Calculus	
MATH 123	Differential and Integral Calculus I & MATH 124 and Differential and Integral Calculus II	
<b>I. Complete 3.00 units from the following: 3.00</b>		
MATH 221	Vector Calculus	
MATH 280	Advanced Calculus	

## **J. Complete 3.00 units from the following: 3.00**

MATH 225 Ordinary Differential Equations

MATH 231 Differential Equations

## **K. Complete 3.00 units from the following: 3.00**

STAT 252 Introductory Applied Probability

STAT 268 Statistics and Probability I

STAT 351 Probability I

## **L. Complete 3.00 units from the following: 3.00**

BIOL 243 Introduction to Statistics

STAT 269 Statistics and Probability II

## **M. Complete the following:**

BIOM 300 Modeling Techniques in Biology 3.00

MATH 339 Evolutionary Game Theory 3.00

## **2. Option**

### **A. Complete 6.00 units from the following: 6.00**

BIOL at the 300-level or above

BIOL\_Sub\_A

BIOL\_Sub\_B

### **B. Complete 3.00 units from the following: 3.00**

BIOL at any level

### **C. Complete 6.00 from the following: 6.00**

MATH at the 300-level or above

STAT at the 300-level or above

### **D. Complete 6.00 units from the following 6.00**

MATH at any level

STAT at any level

## **Electives**

Elective Courses 36.00

**Total Units 120.00**

## 3. Substitutions

A. BCHM 310 (or the combination of BCHM 315 and BCHM 316) may be substituted for 3.00 units from (BIOL 334 or BIOL 339 or BIOL 341) 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 as an alternative to BIOL 330 to satisfy requirement 1.F.



## 4. Notes

A. 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 BMED, COMM, GLPH, HSCI, 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 2.6 (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.

### BIOL\_Sub\_A

Code	Title	Units
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#### 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	Fundamental Microbiology	3.00
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MICR 271	Introduction to Microbiology	3.00
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MICR at the 300-level or above

PATH at the 300-level or above

PHGY at the 300-level or above

### BIOL\_Sub\_B

Code	Title	Units
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#### Biology Substitutions List B

APSC 400	Technology, Engineering & Management (TEAM)	6.00
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CHEE 400	Technology, Engineering & Management (TEAM)	6.00
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CHEM at the 200-level or above

ENSC 301	Environmental Assessment	3.00
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ENSC 307	Marine Environmental Issues	3.00
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ENSC 320	Wildlife Issues in a Changing World	3.00
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ENSC 390	Sustainability	3.00
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ENSC 425	Ecotoxicology	3.00
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ENSC 471	Environmental Analysis Methods	3.00
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EPID 301	Principles of Epidemiology	3.00
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GEOL 337	Paleontology	3.00
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GEOL 466	Isotopes and the Environment	3.00
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GPHY 304	Northern and Arctic Environments	3.00
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GPHY 306	Natural Environmental Change	3.00
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GPHY 310	Landscape Ecology	3.00
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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