

BACHELOR OF SCIENCE BIOLOGICAL SCIENCES MAJOR

2013/14 Academic Year

REQUIRED JUNIOR LEVEL COURSES¹

6 CREDITS

- BIOL 107: Introduction to Cell Biology [FALL/WINTER]²
- BIOL 108: Organisms in their Environment [FALL/WINTER]

REQUIRED SENIOR LEVEL COURSES³

6 CREDITS

- BIOL 207: Principles of Genetics⁴ [FALL/WINTER]
- BIOL 208: Principles of Ecology [FALL]

GENERAL SENIOR LEVEL COURSES⁵

36 CREDITS

Within the 36 credits required to meet this major's general requirements, a minimum of 18 credits must be completed at the 300- or 400-level, of which a minimum of 6 credits must be completed at the 400-level.

MOLECULAR GENETICS COURSES

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| <ul style="list-style-type: none"> <input type="checkbox"/> BICM 200: Introductory Biochemistry⁶ [FALL/WINTER] <input type="checkbox"/> BIOL 201: Eukaryotic Cellular Biology I [FALL/WINTER] <input type="checkbox"/> BIOL 205: Principles of Molecular Biology⁷ [FALL/WINTER] <input type="checkbox"/> BIOL 211: Introduction to Microbiology [WINTER] <input type="checkbox"/> ZOOL 241: Animal Physiology I [FALL] <input type="checkbox"/> ZOOL 242: Animal Physiology II [WINTER] | <ul style="list-style-type: none"> <input type="checkbox"/> GENE 317: Genetics and Society [WINTER] <input type="checkbox"/> GENE 369: Genetic Analysis of Bacteria⁴ [WINTER] <input type="checkbox"/> GENE 370: Genetics Analysis of Eukaryotes⁴ [FALL] |
| <ul style="list-style-type: none"> <input type="checkbox"/> BICM 320: Structure and Function of Biomolecules [FALL] <input type="checkbox"/> BICM 330: Nucleic Acid Chemistry and Molecular Biology [WINTER] <input type="checkbox"/> BIOL 300: Eukaryotic Cellular Biology II [WINTER] <input type="checkbox"/> BIOL 313: Animal Developmental Biology [FALL] | <ul style="list-style-type: none"> <input type="checkbox"/> GENE 400: Genome Organization⁸ [WINTER] <input type="checkbox"/> GENE 404: Genetic Regulatory Mechanisms⁸ [FALL] <input type="checkbox"/> GENE 418: Human Genetics [FALL] <input type="checkbox"/> GENE 420: Research Techniques in Molecular Biology⁸ [FALL] |

ENVIRONMENTAL BIOLOGY COURSES

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| <ul style="list-style-type: none"> <input type="checkbox"/> BOTN 205: Fundamentals of Plant Biology [FALL] <input type="checkbox"/> ZOOL 224: Vertebrate Adaptations and Evolution⁴ [FALL] <input type="checkbox"/> ZOOL 250: Survey of the Invertebrates [WINTER] | <ul style="list-style-type: none"> <input type="checkbox"/> BIOL 410: Techniques in Field Ecology [SUMMER] <input type="checkbox"/> ZOOL 400: Aquatic Vertebrates [FALL] <input type="checkbox"/> ZOOL 401: Terrestrial Vertebrates [WINTER] <input type="checkbox"/> ZOOL 425: Introductory Entomology [FALL] <input type="checkbox"/> ZOOL 452: Principles of Parasitism [WINTER] |
| <ul style="list-style-type: none"> <input type="checkbox"/> BIOL 310: Fresh Aquatic Ecology [ODD FALL] <input type="checkbox"/> BIOL 312: Terrestrial Ecology [EVEN FALL] <input type="checkbox"/> BIOL 314: Population Ecology [EVEN WINTER] <input type="checkbox"/> BIOL 361: Marine Biology [WINTER] <input type="checkbox"/> BIOL 365: Tropical Rainforest Ecology [SPRING] <input type="checkbox"/> BIOL 367: Conservation Biology [FALL] <input type="checkbox"/> BIOL 371: Animal Behaviour [FALL] <input type="checkbox"/> ZOOL 324: Comparative Anatomy of Vertebrates⁴ [WINTER] | |

CROSS LISTED COURSES

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| <ul style="list-style-type: none"> <input type="checkbox"/> BIOL 315: History of Biology [FALL] <input type="checkbox"/> BIOL 321: Mechanisms of Evolution [FALL] <input type="checkbox"/> BIOL 337: Biostatistics and Research Design⁴ [WINTER] <input type="checkbox"/> BIOL 385: Wildlife Forensics [NOT OFFERED 2013/14] | <ul style="list-style-type: none"> <input type="checkbox"/> BIOL 492: Field Placement [NOT OFFERED 2013/14] <input type="checkbox"/> BIOL 495: Special Topics⁹
[VARIABLE – FALL/WINTER 2013/14] <input type="checkbox"/> BIOL 498: Independent Research⁹ [FALL/WINTER] |
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➤ Important! Please see the back of this page for planning notes. ◀

This planning sheet should be used only as a **guide** for course planning and it should be used in conjunction with the Bachelor of Science Degree Planner. Remember: not all courses listed are offered each year and course offerings are subject to change. In the event of a discrepancy between the information presented on this sheet and that available on myStudentSystem, the information on myStudentSystem will be considered accurate.

IMPORTANT PLANNING NOTES

1. **BIOL 107** and **BIOL 108** should be completed in the first year of a program and can be taken in either order. **BIOL 107** and **BIOL 108** can be used to satisfy core requirements in the Bachelor of Science degree.
2. The typical term in which courses are offered is indicated. All students majoring in Biological Sciences should take careful note of the terms in which courses are offered; many essential senior-level Biological Sciences courses are offered only once a year. For example, **BIOL 208** is only offered in the Fall term, so students who neglect to take **BIOL 208** early in their degree may significantly set back their graduation date. Some senior level courses are offered in alternate years. Students should confirm course offerings with the Program Office.
3. **BIOL 207** and **BIOL 208** should be completed in the second year of a student's program.
4. Please make note of the following changes to course numbers and titles. Note that re-numbered and re-titled courses are considered equivalent to one another and students cannot take both for credit.
 - **BIOL 207** is now titled Principles of Genetics; it was previously titled Molecular Genetics and Heredity.
 - **BIOL 337** is now titled Biostatistics and Research Design; it was previously titled Biological Statistics.
 - **GENE 369**: Genetic Analysis of Bacteria is a renumbering of **GENE 270**: Genetics of Bacteria.
 - **GENE 370** is now titled Genetic Analysis of Eukaryotes; it was previously titled Genetics of Higher Organisms.
 - **ZOOL 224** is now titled Vertebrate Adaptations and Evolution; it was previously titled Vertebrate Diversity.
 - **ZOOL 324**: Comparative Anatomy of Vertebrates is a renumbering of **ZOOL 225**: Comparative Anatomy of the Vertebrates.
5. The Molecular Genetics and Environmental Biology streams are suggested paths of study; they are not formal or required concentrations. Students majoring in Biological Sciences can choose a Molecular Genetics focus, an Environmental Biology focus, or a general Biological Sciences major.
6. Some courses in this major require prerequisites from another discipline. For example, **BICM 200** requires a minimum grade of C- in **BIOL 107**, **CHEM 101**, and **CHEM 261**. Students should consult the MacEwan Academic Calendar.
7. Students interested in the Molecular Genetics stream should complete **BIOL 205** in the second year of their program. Effective Fall 2014, **BIOL 205** will be one of the prerequisites for **BIOL 300**, **BIOL 313**, **GENE 369**, and **GENE 370**.
8. Effective Fall 2014, both (**GENE 270** or **GENE 369**) and **GENE 370** will be prerequisites for **GENE 400**, **GENE 404**, and **GENE 420**.
9. Students may take **BIOL 495** and **BIOL 498** for credit a maximum of two times each, as long as the course topic is different each time they take either course.