



The following information regarding course prerequisites is meant to help students prepare for the Bachelor of Science Concentrations:

Note: some 3<sup>rd</sup> and 4<sup>th</sup> year courses may be offered in alternating years.

### 1. Biomedical Concentration

At minimum, learners should take the following prerequisites as lower-level science electives:

- BIOL 111, BIOL 200, BIOL 209, BIOL 214
- CHEM 111, CHEM 204, CHEM 211, CHEM 215

#### Biomedical Concentration Courses (with prerequisites listed):

- BIOL 300: Molecular Genetics (4.00) *Prerequisites: BIOL 200 (C-)*

Select **three** courses from the approved list of Biomedical Sciences below:

- BIOL 312: Human Physiology I: Brains, Hormones and Guts (3.00)  
*Prerequisites: BIOL 209 (C-)*
- BIOL 313: Human Physiology II (3.00)  
*Prerequisites: BIOL 209 (C)*
- BIOL 314: Advanced Cell Biology (3.00)  
*Prerequisites: BIOL 214 (C-); and BIOL 215 (C-) or CHEM 215 (C-)*
- BIOL 403: Microbiology and Immunology (3.00)  
*Prerequisites: BIOL 203 (C-) or BIOL 214 (C-); and BIOL 215 (C-) or CHEM 215 (C-)*
- CHEM 315: Biochemistry II: Metabolism and Bioenergetics (3.00)  
*Prerequisites: CHEM 211 (C-) and CHEM 204 (C-), or CHEM 201 (C-); and BIOL 215 (C-) or CHEM 215 (C-)*
- CHEM 411: Medicinal Chemistry: Drug Design and Drug Action (3.00)  
*Prerequisites: CHEM 211 (C-) and CHEM 204 (C-), or CHEM 201 (C-); and BIOL 215 (C-) or CHEM 215 (C-)*



## 2. Computational Science Concentration

At minimum, students should take the following prerequisites as lower-level science electives:

- COMP 215
- MATH 109 or 126; MATH 124; MATH 252
- STAT 205 (*recommended*)

### Computational Science Concentration Courses (with prerequisites listed):

Select one of the options from the following list:

- COMP 320: Database Technologies and Applications (4.00) *Prerequisites: 45 credits of 100-level or higher coursework and COMP 215*
- COMP 330: Data Wrangling: Scripting for Automated Data Processing (4.00) *Prerequisites: 45 credits of 100-level or higher coursework and one of COMP 115 (A-) or COMP 215*

Select **three** courses from the approved list of Computational Sciences below:

- COMP 301: Computing Technologies in a Digital Culture (3.00)  
*Prerequisites: 45 credits of 100-level or higher coursework and one of COMP 101 or COMP 115 or MOPA 209*
- COMP 320: Database Technologies and Applications (4.00)  
*Prerequisites: 45 credits of 100-level or higher coursework and COMP 215*
- COMP 330: Data Wrangling: Scripting for Automated Data Processing (4.00)  
*Prerequisites: 45 credits of 100-level or higher coursework and one of COMP 115 (A-) or COMP 215*
- MATH 330: Mathematical Modelling (3.00)  
*Prerequisites: 45 credits of 100-level or higher coursework including: MATH 109 or MATH 126; and MATH 200 or MATH 252*
- MATH 336: Applied Graph Theory and Optimization (3.00)  
*Prerequisites: 45 credits of 100-level or higher coursework including MATH 124*
- MATH 400: Introduction to Machine Learning (3.00)  
*Prerequisites: STAT 305; and MATH 108 or MATH 116*
- STAT 305: Introduction to Big Data Analysis (3.00)  
*Prerequisites: COMP 115 and one of STAT 101, STAT 205, LBST 201, BADM 210, PSYC 213, TOUR 350 or KINE 302*
- STAT 310: Predictive Modelling and Analysis of Experimental Data (3.00)  
*Prerequisites: 45 credits 100-level or higher coursework including one of STAT 101, STAT 205, LBST 201, BADM 210, PSYC 213, TOUR 350 or KINE 302*



### 3. Environmental Science Concentration

At minimum, students must take the following prerequisites as lower-level science electives:

- BIOL 111, BIOL 208
- CHEM 111, CHEM 211, CHEM 204

#### Environmental Science Concentration Courses (with prerequisites listed):

Select one of the options from the following list:

- BIOL 408: Ecosystem Restoration (4.00)  
*Prerequisites: BIOL 208 (C-)*
- CHEM 311: Applications of Spectroscopy (4.00)  
*Prerequisites: CHEM 201 (C-); or CHEM 211 (C-) and CHEM 204 (C-)*
- PHYS 310: Environmental Physics Lab (4.00)  
*Prerequisites: PHYS 210 or PHYS 211; OR STAT 205 and one of: CHEM 200, CHEM 201, CHEM 206, CHEM 211, BIOL 203, BIOL 208, BIOL 214, or BIOL 215*

Select one of the options from the following list:

- STAT 310: Predictive Modelling and Analysis of Experimental Data (3.00)  
*Prerequisites: 45 credits 100-level or higher coursework including one of STAT 101, STAT 205, LBST 201, BADM 210, PSYC 213, TOUR 350 or KINE 302*
- MATH 330: Mathematical Modelling (3.00)  
*Prerequisites: 45 credits of 100-level or higher coursework including: MATH 109 or MATH 126; and MATH 200 or MATH 252*

Select **two** courses from the approved list of Environmental Sciences below:

- BIOL 308: Conservation Biology (3.00)  
*Prerequisites: BIOL 208 (C-)*
- BIOL 408: Ecosystem Restoration (4.00)  
*Prerequisites: BIOL 208 (C-)*
- CHEM 304: Environmental Chemistry (3.00)  
*Prerequisites: CHEM 201 (C-); or CHEM 211 (C-) and CHEM 204 (C-)*
- CHEM 311: Applications of Spectroscopy (4.00)  
*Prerequisites: CHEM 201 (C-); or CHEM 211 (C-) and CHEM 204 (C-)*
- CHEM 404: Green Chemistry (4.00)  
*Prerequisites: CHEM 201 (C-); or CHEM 211 (C-) and CHEM 204 (C-)*
- PHYS 300: Environmental Thermodynamics (3.00)  
*Prerequisites: MATH 230 and PHYS 203*
- PHYS 310: Environmental Physics Lab (4.00)  
*Prerequisites: PHYS 210 or PHYS 211; OR STAT 205 and one of: CHEM 200, CHEM 201, CHEM 206, CHEM 211, BIOL 203, BIOL 208, BIOL 214, or BIOL 215*