

<p>FIRST YEAR</p> <p>COMMUNICATION REQUIREMENT¹ 3</p> <p>CHEM 121 (111), 123 8</p> <p>MATH 100 OR 102 OR 104² 3</p> <p>MATH 101 OR 103 OR 105³ 3</p> <p>PHYS 100-LEVEL⁴ 6</p> <p>ELECTIVES^{5,6} 10</p> <p>TOTAL CREDITS 33</p>	<p>THIRD YEAR</p> <p>BIOL 201 (OR BIOC 202)⁸ 3</p> <p>CHEM 300¹ 3</p> <p>CHEM 304 3</p> <p>CHEM 311 3</p> <p>CHEM 312 3</p> <p>CHEM 319, 329 2</p> <p>CHEM 325, 345 4</p> <p>THREE OF CHEM 305, 313, 318, 327, 330 9</p> <p>ELECTIVES^{5,6} 3</p> <p>TOTAL CREDITS 33</p>
<p>SECOND YEAR</p> <p>CHEM 203⁷ 4</p> <p>CHEM 208, 218 6</p> <p>CHEM 211 4</p> <p>CHEM 213, 245 4</p> <p>MATH 200, 221 6</p> <p>ELECTIVES^{5,6} 9</p> <p>TOTAL CREDITS 33</p>	<p>FOURTH YEAR</p> <p>CHEM 412 3</p> <p>CHEM 449 6</p> <p>CHEM ELECTIVES^{6,9} 12</p> <p>ELECTIVES^{5,6} 12</p> <p>TOTAL CREDITS 33</p> <p>TOTAL CREDITS FOR DEGREE 132</p>

¹ Of the 6 credits of coursework is required to satisfy the Communication Requirement, 3 credits are specified in third year (CHEM 300). The remaining 3 credits must be chosen from the list of acceptable courses, see [Communication Requirement](#). ENGL credits beyond those needed to satisfy the Communication Requirement may be applied towards the Faculty of Science [Arts Requirement](#).

² MATH 180 or 184 or 120 may substitute for any of the specified differential calculus courses listed by decreasing the electives by 1 credit. MATH 110 may substitute for any of the specified differential calculus courses listed by decreasing the electives by 3 credits.

³ MATH 121 may substitute for any of the specified integral calculus courses listed by decreasing the electives by 1 credit.

⁴ Chosen from 100-level PHYS courses, excluding PHYS 100. PHYS 109 or 119 are recommended. Students without Physics 12 must take PHYS 100 before taking other 100-level PHYS courses.

⁵ Electives must be chosen to ensure the Faculty of Science [Arts Requirement](#) is met. Elective credits may be redistributed among the years in this specialization, provided the total number remains the same. The year level of an elective does not need to correspond to the year level of the specialization. Note that students in honours specializations must complete a minimum of 30 credits in each Winter Session. Students who do not have credit for Biology 11 or 12 must take 3 credits of 100-level BIOL (usually BIOL 111). Students with credit for Biology 11 or 12 must successfully complete 3 credits of an ASTR, BIOL, EOSC, or GEOB lecture course.

⁶ Students may elect to apply elective credits towards a [Specific Focus Area in Chemistry](#).

⁷ Students with CHEM 235 and a score of 76% or higher in CHEM 233 may apply for admission to this specialization and will be allowed to use CHEM 233 and 235 in place of CHEM 203.

⁸ BIOC 203 is a suitable substitute for this requirement. For students without credit for BIOL 200, selecting BIOL 201 requires either CHEM 313 or CHEM 330.

⁹ Chosen from 300- and 400- level CHEM lecture courses. At least 9 credits must be chosen from 400-level CHEM lecture courses.