Joint Programs in Chemistry and Biology

a) Advanced Major in Chemistry and Biology b) Advanced Major in Biology and Chemistry
c) Honours in Chemistry and Biology d) Honours in Biology and Chemistry

Joint Advanced Major Program (Chemistry and Biology)

Science A Chemistry	42 credits: Required courses:CHEM 101/102 **or** 121/122☐, CHEM 221/222 ☐, CHEM 231 ☐, CHEM 245 ☐, CHEM 265 ☐, CHEM 325 ☐ **Regular joint program:** CHEM 232 ☐, CHEM 361 ☐, CHEM 362 ☐, 6 credits from CHEM 341 ☐, CHEM 342 ☐, CHEM 421 ☐ , CHEM 422 ☐ , plus a 3-cr CHEM elective _____ ☐ **OR** **Biochemistry concentration:** CHEM 255 ☐, CHEM 355 ☐, 6 credits from: CHEM 232 ☐ , CHEM 421 ☐, CHEM 422 ☐, CHEM 455 ☐ , plus 6-cr CHEM elective _____ ☐ *(CHEM 361/362 recommended)* In addition, students must complete the junior and senior seminars (391 ☐ and 491 ☐) - non-credit courses.
Science B Biology	36 credits: Required courses: BIOL 111 ☐, BIOL 112 ☐, BIOL 201 ☐, BIOL 202 ☐, BIOL 204 ☐, BIOL 395 ☐ **Regular joint program:** CHEM 255 ☐, BIOL 203 ☐, plus 12-cr BIOL elective with at least 3-cr at the 400 level _____ ☐ _____ ☐ _____ ☐ _____ ☐ **OR** **Biochemistry option:** BIOL 315 ☐, BIOL 317 ☐, BIOL 425 ☐, plus 6-cr from BIOL 390(6) ☐, BIOL 402(3) ☐, BIOL 404(3) ☐, BIOL 417(3) ☐, BIOL 419(3) ☐, and a 3-cr BIOL elective _____ ☐
Science C Physics	6 credits: PHYS 121 ☐ and PHYS 122 ☐
Arts X	12 credits: in a single Humanities or Social Science discipline. _____ ☐ _____ ☐
Arts Y	6 credits: in a second Humanities or Social Science discipline. _____ ☐
Approved electives	12 credits: MATH 106 ☐, MATH 107 ☐, STAT 231 ☐, STAT 331 ☐
Open elective	6 credits: Arts or Science elective(s) _____ ☐ *(CHEM 232 recommended for Biochemistry concentration)*

Grade requirements:

- *Overall average of 65% or better in the first two years*
- *Grades of 65% or better in each Advanced Majors (Science A and B) course*
- *General average of 70% or better in each of the final two years*
- *Averages of 70% or better in the Advanced Majors courses (for Science A and for Science B) in each of the final two years*

Updated October, 2021

Joint Advanced Major Program (Biology and Chemistry)

Science A Biology	42 credits: Required courses: BIOL 111 ☐, BIOL 112 ☐, BIO 201 ☐, BIO 202 ☐, BIO 203 ☐, BIOL 204 ☐, BIOL 395 ☐ **Regular joint program:** CHEM 255 ☐ and 18-cr BIOL electives with at least 3-cr at the 400 level *(BIO 315 & 317 recommended)* _____ ☐ _____ ☐ _____ ☐ **OR** **Biochemistry concentration:** BIOL 315 ☐, BIOL 317 ☐, BIOL 425 ☐, and 9-cr from BIOL 390(6) ☐, 402 (3) ☐, 404(3) ☐, 417(3) ☐, 419 (3) ☐ and a 3-cr BIOL elective: _____ ☐ In addition, students must complete the senior seminars (BIOL 491 ☐) - non-credit course.
Science B Chemistry	36 credits: Required courses:CHEM 101/102 **or** 121/122 ☐, CHEM 221/222 ☐, CHEM 231 ☐, CHEM 245 ☐, CHEM 265 ☐ **Regular joint program:** CHEM 232 ☐ , CHEM 361 ☐, CHEM 362 ☐, and a 6-cr CHEM elective _____ ☐ **OR** **Biochemistry option:** CHEM 255 ☐, CHEM 355 ☐ , and a 6-cr CHEM elective _____ ☐
Science C Physics	6 credits: PHYS 101/102 ☐ **or** PHYS 121/122 ☐
Arts X	12 credits: in a single Humanities or Social Science discipline. _____ ☐ _____ ☐
Arts Y	6 credits: in a second Humanities or Social Science discipline. _____ ☐
Approved electives	12 credits: MATH 106 ☐, MATH 107 ☐, STAT 231 ☐, STAT 331 ☐
Open elective	6 credits: Arts or Sciences elective(s) _____ ☐ _____ ☐

Grade requirements:

- *Overall average of 65% or better in the first two years*
- *Grades of 65% or better in each Advanced Majors (Science A and B) course*
- *General average of 70% or better in each of the final two years*
- *Averages of 70% or better in the Advanced Majors courses (for Science A and for Science B) in each of the final two years*

Updated October, 2021

Joint Honours Program (Chemistry and Biology)

Science A Chemistry	48 credits: Required courses: CHEM 101/102 **or** 121/122 ☐, CHEM 221/222 ☐, CHEM 231 ☐, CHEM 232 ☐, CHEM 245 ☐, CHEM 265 ☐, CHEM 361 ☐, CHEM 362 ☐, CHEM 325 ☐, CHEM 493 ☐ **Regular joint program:** 6 credits from CHEM 331, CHEM 332, CHEM 341, CHEM 342 _____ ☐ 6 credits from CHEM 355, CHEM 421, CHEM 422 _____ ☐ **OR** **Biochemistry concentration:** CHEM 255 ☐, CHEM 355, plus 6-cr from: CHEM 341, CHEM 342, CHEM 421, CHEM 422, CHEM 455 _____ ☐ _____ ☐ In addition, students must complete the junior and senior seminars (391 ☐ and 491 ☐) - non-credit courses.
Science B Biology	36 credits: Required courses: BIOL 111 ☐, BIOL 112 ☐, BIOL 201 ☐, BIOL 202 ☐, BIOL 204 ☐, BIOL 395 ☐ **Regular joint program:** CHEM 255 ☐, BIOL 203 ☐, 12-cr BIOL elective with at least 3-cr at the 400 level *(BIOL 315 & 317 recommended)* _____ ☐ _____ ☐ _____ ☐ _____ ☐ **OR** **Biochemistry option:** BIOL 315 ☐, BIOL 317 ☐, BIOL 425 ☐, plus 6-cr from BIOL 390(6) ☐, BIOL 402(3) ☐, BIOL 404(3) ☐, BIOL 417(3) ☐, BIOL 419(3) ☐, and a 3-cr BIOL elective _____ ☐
Science C Physics	6 credits: PHYS 121 ☐ and PHYS 122 ☐
Arts X	12 credits: in a single Humanities or Social Science discipline. _____ ☐ _____ ☐
Arts Y	6 credits: in a second Humanities or Social Science discipline. _____ ☐
Approved electives	12 credits: MATH 106 ☐, MATH 107 ☐, STAT 231 ☐, STAT 331 ☐

Grade requirements:

- *Overall average of 75% or better in each of the first two years*
- *70% or better in each Honours course (Science A and B) with overall averages of 75% for each of Science A and Science B courses*
- *Overall averages of 75% or better in each of the final two years*
- *Normally 70% or better in each Honours course (Science A & B) with overall averages of 75% for each of Science A and Science B courses in the final two years*

Updated October, 2021

Joint Honours Program (Biology and Chemistry)

Biology Science A	48 credits: Required courses: BIOL 111 ☐, BIO112 ☐, BIOL 201 ☐, BIOL 202 ☐, BIOL 203 ☐, BIOL 204 ☐, BIOL 395 ☐, BIOL 493 ☐ **Regular joint program:** CHEM 255 ☐, 21-cr BIOL elective with at least 3-cr at the 400 level *(BIOL 315 & 317 recommended)* _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ **OR** **Biochemistry option:** BIOL 315 ☐, BIOL 317 ☐, BIOL 425 ☐, plus 12-cr from BIOL 390 ☐, BIOL 402 ☐, BIOL 404 ☐, BIOL 417 ☐, BIOL 419 ☐, and a 3-cr BIOL elective _____ ☐ In addition, students must complete the senior seminars (BIOL 491 ☐) - non-credit course.
Chemistry Science B	36 credits: Required courses: CHEM 101/102 **or** 121/122 ☐, CHEM 221/222 ☐, CHEM 231 ☐, CHEM 232 ☐, CHEM 245 ☐, CHEM 265 ☐ **Regular joint program:** CHEM 361 ☐, CHEM 362 ☐, and 6-cr of CHEM electives _____ ☐ **OR** **Biochemistry concentration:** CHEM 255 ☐, CHEM 355 ☐, plus 6-cr CHEM electives _____ ☐
Physics Science C	6 credits: PHYS 101/102 ☐ **or** PHYS 121/122 ☐
Arts X	12 credits: in a single Humanities or Social Science discipline. _____ ☐ _____ ☐
Arts Y	6 credits: in a second Humanities or Social Science discipline. _____ ☐
Approved electives	12 credits: MATH 106 ☐, MATH 107 ☐, STAT 231 ☐, STAT 331 ☐

Grade requirements:

- *Overall average of 75% or better in each of the first two years*
- *70% or better in each Honours course (Science A and B) with overall averages of 75% for each of Science A and Science B courses*
- *Overall averages of 75% or better in each of the final two years*
- *Normally 70% or better in each Honours course (Science A & B) with overall averages of 75% for each of Science A and Science B courses in the final two years*

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