

# CHEMISTRY - PHYSICS JOINT, B.SC. HONOURS

## Degree Requirements

### Joint Honours <sup>1,2</sup>

Course	Title	Hours
<b>Year 1</b>		
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics (B)	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (B)	3
CHEM 1120	Introduction to Chemistry Techniques <sup>3</sup>	3
One of the following: <sup>4</sup>		3
PHYS 1050	Physics 1: Mechanics (B)	
PHYS 1020	General Physics 1 (B+)	
One of the following: <sup>4</sup>		3
PHYS 1070	Physics 2: Waves and Modern Physics (B)	
PHYS 1030	General Physics 2 (B+)	
MATH 1300	Vector Geometry and Linear Algebra <sup>5</sup>	3
MATH 1500	Introduction to Calculus (B) <sup>5</sup>	3
MATH 1700	Calculus 2 (B) <sup>5</sup>	3
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
<b>Hours</b>		<b>30</b>
<b>Year 2</b>		
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry	3
CHEM 2122	Experimental Organic Chemistry	3
CHEM 2300	Inorganic Chemistry 1: Structure and Applications	3
CHEM 2510	Introduction to Analytical Chemistry	3
CHEM 2520	Introduction to Analytical Chemistry Techniques	2
MATH 2720	Multivariable Calculus	3
PHYS 2386	Introduction to Quantum Mechanics and Special Relativity	3
PHYS 2496	Mathematical Physics 1	3
PHYS 2650	Classical Mechanics 1	3
3 credit hours of electives <sup>2</sup>		3
<b>Hours</b>		<b>29</b>
<b>Year 3</b>		
CHEM 2110	Organic Chemistry 2: Foundations of Organic Synthesis	3
CHEM 2600	Physical Chemistry 1	3
CHEM 3300	Inorganic Chemistry 2: Reactivity and Properties	3
CHEM 3500	Instrumental Analysis	3
PHYS 2260 or PHYS 2610	Optics or Circuit Theory and Introductory Electronics	3
PHYS 2600	Electromagnetic Field Theory	3
PHYS 3386	Quantum Mechanics 2	3

PHYS 3630	Electro - and Magnetostatic Theory	3
PHYS 3670	Classical Thermodynamics	3
PHYS 3496	Mathematical Physics 2	3
<b>Hours</b>		<b>30</b>
<b>Year 4</b>		
CHEM 3320	Inorganic Chemistry Laboratory	2
CHEM 3520	Instrumental Analysis Laboratory	2
CHEM 4610	Advanced Chemical Techniques	6
One of the following:		6
CHEM 4710	Research Project in Chemistry or Biochemistry	
PHYS 4676 & PHYS 4678	Honours Thesis - Proposal and Preparation and Honours Thesis - Dissertation	
PHYS 4386	Quantum Mechanics 3	3
PHYS 4680	Statistical Mechanics	3
3 credit hours of 3000/4000 level Physics courses		3
6 credit hours of electives <sup>2</sup>		6
<b>Hours</b>		<b>31</b>
<b>Total Hours</b>		<b>120</b>

- <sup>1</sup> IMPORTANT: The joint Honours program need not be completed in the manner prescribed in the grid above. The grid indicates the recommended arrangement of the required courses and is meant to be a guide around which students can plan their program.
- <sup>2</sup> CHEM 1018, CHEM 2523, CHEM 3331, and PHYS 1018 may not count towards the 120 credit hours required for this degree.
- <sup>3</sup> CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120. Note: CHEM 1122 and CHEM 1126 are only available to Price Faculty of Engineering students.
- <sup>4</sup> Students are advised to take PHYS 1050 and PHYS 1070.
- <sup>5</sup>
  - MATH 1220 may be taken in place of MATH 1300;
  - MATH 1230 or MATH 1510, the former MATH 1520, or MATH 1524 may be taken in place of MATH 1500;
  - MATH 1232 or MATH 1710 may be taken in place of MATH 1700.

(Letters in brackets indicate minimum prerequisite standing for further study.)