

CHEMISTRY - PHYSICS JOINT, B.SC. HONOURS

Chemistry - Physics Joint Honours Entrance, Continuation, and Graduation Requirements

The departments of Chemistry and Physics and Astronomy offer a joint Honours program for in-depth study in both Chemistry and Physics & Astronomy.

To enter the Joint Honours Chemistry - Physics program a student must have a minimum grade of "B" in each of CHEM 1100, CHEM 1110, PHYS 1050 (or PHYS 1020 with a B+), PHYS 1070 (or PHYS 1030 with a B+), MATH 1500 (or any equivalent) and MATH 1700 (or any equivalent) and a minimum DGPA of 3.00. CHEM 1120 and MATH 1300 are not entry requirements, but it is recommended they be completed prior to entry.

To continue in the Joint Honours Chemistry - Physics program, a student must maintain a minimum DGPA of 3.00 and complete a minimum of 9 credit hours during each Fall and Winter Term.

To graduate with the Joint Honours Chemistry - Physics degree, a student must obtain a minimum DGPA of 3.00 and present a minimum grade of "C" in each course that contributes to the degree (except for those courses outlined in the above entry requirements).

Degree Requirements

Joint Honours^{1,2}

Course	Title	Hours
Year 1		
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 ³	3
Select one of the following: ⁴		3
PHYS 1050	Physics 1: Mechanics (B)	
PHYS 1020	General Physics 1 (B+)	
Select one of the following: ⁴		3
PHYS 1070	Physics 2: Waves and Modern Physics (B)	
PHYS 1030	General Physics 2 (B+)	
MATH 1300	Vector Geometry and Linear Algebra ⁵	3
MATH 1500	Introduction to Calculus (B) ⁵	3
MATH 1700	Calculus 2 (B) ⁵	3
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
Hours		30
Year 2		
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 ²		3
Hours		29

Year 3

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
Hours		30

Year 4

CHEM 3320	Inorganic Chemistry Laboratory	2
CHEM 3520	Instrumental Analysis Laboratory	2
CHEM 4610	Advanced Chemical Techniques	6
Select 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 ²		6
Hours		31
Total Hours		120

¹ 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.

² CHEM 1018, CHEM 2523, CHEM 3331, and PHYS 1018 may not count towards the 120 credit hours required for this degree.

³ CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120. Note: CHEM 1122 is only available to Price Faculty of Engineering students.

⁴ Students are advised to take PHYS 1050 and PHYS 1070.

2 *Chemistry - Physics Joint, B.Sc. Honours*

- 5
- MATH 1220 may be taken in place of MATH 1300;
 - MATH 1230 or MATH 1510 or MATH 1520 may be taken in place of MATH 1500;
 - MATH 1232 or MATH 1710 may be taken in place of MATH 1700;
 - MATH 1690 may be taken in place of MATH 1500 and MATH 1700.

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