COMPUTER SCIENCE - PHYSICS & ASTRONOMY JOINT, B.SC. HONOURS

Degree Requirements

Joint Honours (Including Co-operative Option if Selected)

Course	Title	Hours
Year 1		
PHYS 1050	Physics 1: Mechanics [1]	3
PHYS 1070	Physics 2: Waves and Modern Physics (B) [1]	3
One of:		3
COMP 1010	Introductory Computer Science 1	
COMP 1012	Computer Programming for Scientists and Engineers	
COMP 1020	Introductory Computer Science 2 (B)	3
MATH 1300	Vector Geometry and Linear Algebra (C+) [1]	3
MATH 1500	Introduction to Calculus [1]	3
MATH 1700	Calculus 2 [1]	3
6 credit hours from the Faculty of Arts, which should include the required 3 credit hour "W" course [2]		6
3 credit hours of electives [3]		3
	Hours	**30**
Year 2		
One of: [3,4]		3
PHYS 2260	Optics	
Physics elective [3]		
PHYS 2386	Introduction to Quantum Mechanics and Special Relativity	3
PHYS 2496	Mathematical Physics 1	3
PHYS 2650	Classical Mechanics 1	3
MATH 1240	Elementary Discrete Mathematics [1]	3
MATH 2720	Multivariable Calculus	3
COMP 2080	Algorithms: Design and Implementation	3
COMP 2140	Data Structures: Analysis and Implementation	3
COMP 2400	Programming Paradigms	3
COMP 2280	Introduction to Computer Systems	3
	Hours	**30**
Summer		
Co-op Requirements (if selected):		
SCI 3980	Co-operative Education Work Term 1 [5]	0
	Hours	**0**
Year 3		
PHYS 2600	Electromagnetic Field Theory	3
One of: [3,4]		3
PHYS 2610	Circuit Theory and Introductory Electronics	
Physics elective [3]		
PHYS 3386	Quantum Mechanics 2	3
PHYS 3670	Classical Thermodynamics	3
PHYS 3496	Mathematical Physics 2	3
COMP 3170	Analysis of Algorithms and Data Structures	3
COMP 3430	Operating Systems	3
6 credit hours of 3000 and/or 4000 level Computer Science courses		6
3 credit hours of electives [3]		3
	Hours	**30**
Summer		
Co-op Requirements (if selected):		
SCI 3990	Co-operative Education Work Term 2 [5]	0
	Hours	**0**
Year 4		
PHYS 4680	Statistical Mechanics	3
12 credit hours of 3000 and 4000 level Honours Physics courses, with at least 6 credit hours at the 4000 level		12
12 credit hours of 3000 or 4000 level courses from Computer Science, with at least 9 credit hours at the 4000 level by the end of Year 4		12
3 credit hours of electives [3]		3
	Hours	**30**
Summer		
Co-op Requirements (if selected):		
SCI 4980	Co-operative Education Work Term 3 [5]	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected) [5]	0
	Hours	**0**
	Total Hours	**120**

[1]
- PHYS 1020 may be taken in place of PHYS 1050, PHYS 1050 is recommended;
- PHYS 1030 (B+) may be taken in place of PHYS 1070, PHYS 1070 is recommended;
- MATH 1230 (C) or MATH 1510 (C) may be taken in place of MATH 1500;
- MATH 1220 (C+) or MATH 1210 (B) may be taken in place of MATH 1300;
- MATH 1232 or MATH 1710 may be taken in place of MATH 1700.

[2] As there are no open electives in Year 2 of the program, students should complete the University written English requirement in Year 1. If not completed in Year 1, a "W" course must be completed prior to Year 3 in addition to the required Year 2 courses.

[3] PHYS 1018 may not count towards the 120 credit hours required for this degree.

[4] Students are required to take at least one of PHYS 2260 or PHYS 2610.

[5] When chosen, the Co-operative Option work terms (SCI 3980, SCI 3990, SCI 4980, and SCI 4990 [if selected]) will normally be completed during the Summer Terms following years 2, 3, and 4 respectively.

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