Honours Physics (Medical Physics) with Thesis and Co-op

University of Windsor

Students entering in an odd year: Fall 2027, 2029, 2031, … · Total courses: 43

	FALL		WINTER		SUMMER
Year 1	**PHYS-1400**	Introductory Physics I	**PHYS-1410**	Introductory Physics II	Off
	MATH-1720	Differential Calculus	**MATH-1730**	Integral Calculus	
	CHEM-1100	General Chemistry I	**CHEM-1110**	General Chemistry II	
	MATH-1250	Linear Algebra I	**PHYS-1500**	From Symmetry to Chaos in the Universe	
	COMP-1400	Introduction to Algorithms and Programming I	**COMP-1410**	Introduction to Algorithms and Programming II	
Year 2	**PHYS-2200**	Oscillations, Waves, and Electromagnetism	**PHYS-2210**	Modern Physics	Work term
	MATH-2780	Vector Calculus[1]	**PHYS-2500**	Intermediate Classical Mechanics	
	MATH-2790	Differential Equations	**MATH-3550**	Introduction to Fourier Series and Special Functions	
	CHEM-2400	Introductory Physical Chemistry I	**PHYS-3700**	Introduction to Medical Physics	
	BIOL-1101	Cell Biology	*Option*	Any area[2]	
Year 3	**CHEM-2300**	Introductory Organic Chemistry[3]	Work term		Work term
	PHYS-3200	Electromagnetism: Statics			
	PHYS-4700	Radiological Physics			
	PHYS-3900	Techniques in Experimental Physics I			
	PHYS XXXX	Any 3000- or 4000-level physics course[4]			
Year 4	**PHYS-3100**	Quantum Mechanics I	**BIOC-2010**	Organic Chemistry of Biomolecules[5]	Work term
	PHYS-3500	Advanced Classical Mechanics	**PHYS-4100**	Quantum Mechanics II	
	PHYS-4710	Medical Imaging	**PHYS-4130**	Introduction to Statistical Mechanics	
	PHYS-4900	Research (thesis)	**PHYS-4900**	Research (thesis)	
	PHYS XXXX	Any 3000- or 4000-level physics course	*Option*	Any area	
Year 5	Off or work term		**PHYS-3210**	Electromagnetism: Dynamics	
			PHYS XXXX	Any 3000- or 4000-level physics course	
			Option	Any area	
			Option	Any area	
			Option	Any area	

Bold: required · Physics · Medical physics · Mathematics · Chemistry and biochemistry · Computer science · Biology

CO-OP WORK TERMS

Students complete three work terms, **PHYS-2980**, **PHYS-3980** and **PHYS-4980**, in three of the four terms marked Work term, as arranged with their employers. The fall of year five may also be used for a work term. Transform, the co-op preparation, is completed in the fall of year two. Students must maintain major and cumulative averages of 65% or better to qualify for Co-op placements.

EXAMPLE PHYSICS ELECTIVES†

PHYS-3110 Atomic and Molecular Spectra · **PHYS-3250** Optics · **PHYS-3600** Computational Physics · **PHYS-3610** The Mathematics of Physics · **PHYS-3910** Techniques in Experimental Physics II (Winter, even years) · **PHYS-4000** Technical Communication Skills · **PHYS-4160** Condensed-Matter Physics · **PHYS-4250** Design and Application of Lasers · **PHYS-4600** Special Topics in Physics · **PHYS-4670** Special Techniques in Health Physics · **PHYS-4720** Magnetic Resonance Imaging · **PHYS-4730** Radiobiology.

† Which run in a given year varies: ask an advisor.

OTHER POSSIBLE OPTIONS

COMP-2120 Object-Oriented Programming Using Java (Fall, Winter, Summer) · **MATH-1020** Mathematical Foundations (Winter, Summer) · **MATH-2250** Linear Algebra II (Fall) · **MATH-3590** Complex Variables (Winter) · **MATH-3800** Numerical Methods (Fall, Winter) · **COMP-2560** Systems Programming (Fall, Winter, Summer) · **STAT-2920** Introduction to Probability (Fall)

NOTES

1. MATH-2780 (Vector Calculus) and MATH-2790 (Differential Equations) are also offered in the Summer before second year, and CHEM-2300 (Introductory Organic Chemistry) in the Summer before third year. Taking any of them then frees a slot later.
2. Two of the options must be arts, humanities or social science courses; all economics (ECON) courses count. Keep in mind that at most fourteen 1000-level courses count toward the degree.
3. CHEM-2305 (Introductory Organic Chemistry) and BIOC-2015 (Organic Chemistry of Biomolecules) are the versions of CHEM-2300 and BIOC-2010 without the lab, and are fine for a career in medical physics. The Department of Chemistry and Biochemistry recommends the lab versions, and medical schools expect them, so take those if medicine is a possibility.
4. PHYS XXXX means any 3000- or 4000-level physics course; numbers beside it are the courses planned for that term, and are tentative. A PHYS XXXX course and an option may swap terms. Consult an advisor for the scheduling of these electives.
5. CHEM-2300 (Introductory Organic Chemistry) and BIOC-2010 (Organic Chemistry of Biomolecules) may be left to fourth year, freeing a slot in third year for an option or an unusual physics elective running that term.
6. To continue in the program, a student needs cumulative and major averages of 60% or better (65% in the Co-op program). To graduate, a student needs a cumulative average of 60% (65% with Co-op) and a major average of 70%.