

SUGGESTED COURSE SEQUENCE

HONOURS MEDICAL PHYSICS FALL 2021 CALENDAR

Honours Physics (Medical Physics)

Degree Requirements

Total courses: 40 (43 for co-op option)

- (a) PHYS-1400, PHYS-1410, PHYS-1500, PHYS-2200, PHYS-22100, PHYS-2500, PHYS-3100, PHYS-3200, PHYS-3210, PHYS-3500, PHYS-3700, PHYS-3900, PHYS-4100, PHYS-4130, PHYS-4700, PHYS-4710 and three more courses in Physics at the 3XXX or 4XXX level.
- (b) BIOL-1101, CHEM-1100, CHEM-1110, CHEM-2300, CHEM-2400, BIOC-2010 (or BIOC-2015), COMP-1400, COMP-1410, MATH-1250 (or MATH-1260), MATH-1720 (or MATH-1760), MATH-1730, MATH-2780, MATH-2790, MATH-3550.
- (c) two of Arts, Humanities and Social Sciences.
- (d) five courses from any area.

For co-op option, in addition:

- (e) three co-op terms: PHYS-2980, PHYS-3980, PHYS-4980, (oral and written reports required). Students must maintain major and cumulative averages of 65% or better to qualify for co-op placements.

For thesis stream, in addition:

- 6.0 credits of PHYS-4900 taken in the fall and winter semester of the 4th year.



University
of Windsor

HONOURS MEDICAL PHYSICS-2021

Required courses are in **bold font** and Medical courses are in *purple font*.

Fall term	Winter term
Year 1	
PHYS 1400 Introductory Physics I	PHYS 1410 Introductory Physics II
MATH 1720/MATH 1760 Differential calculus	MATH 1730 Integral calculus NOTE 1
CHEM 1100 Chemistry I	CHEM 1110 Chemistry II
MATH 1250/MATH 1260 Linear algebra	PHYS 1500 From Symmetry to Chaos in the Universe
COMP 1400 Introduction to Algorithms I	COMP 1410 Introduction to Algorithms II
Year 2	
PHYS 2200 Waves and Oscillations	PHYS-2210 Modern Physics
MATH 2780 Vector Calculus	PHYS 2500 Classical Mechanics I
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	CHEM 2300 Introductory Organic Chemistry
Year 3	
PHYS 3100 Quantum Mechanics I	PHYS 4100 Quantum Mechanics II
PHYS 3200 Electricity and Magnetism I	PHYS 3210 Electricity and Magnetism II
PHYS 3500 Classical Mechanics II	BIOC 2010 or 2015 Organic Chemistry of Biomolecules
PHYS 3900 Experimental Physics Laboratory I	Option 2 NOTE 2
Option 1	Physics 3XXX or 4XXX 1
Year 4	
PHYS 4700 Radiological Physics	PHYS 4710 Medical Imaging
Physics 3XXX or 4XXX 2	PHYS 4130 Introduction to Statistical Mechanics
Option 3	Physics 3XXX or 4XXX 3
Option 4	Option 6
Option 5	Option 7

NOTE 1: Students who wish to “get ahead” on their schedule are advised to enrol in “MATH 2780 Vector Calculus” and/or “MATH 2790 Differential Equations” which are both offered in the summer prior to their second year of classes. Taking these important pre-requisites will free up slots during the second year.

NOTE 2: Students have great flexibility in choosing their options, the following courses are suggestions only. Students should choose courses that are in an area of interest: more mathematics or statistics (as shown), more computer science, more chemistry, or business administration. For a physics degree, as much mathematics, statistics and computer science as possible is recommended. For a medical physics degree, as many optional medical physics classes as possible is recommended. The following options are listed in an appropriate order to satisfy prerequisites and include a mixture of mathematics, computer science, and physics.

OTHER POSSIBLE OPTIONS	
COMP 2120 Object-Oriented Programming Using Java	MATH 1020 Mathematical Foundations
MATH 2250 Linear Algebra II (Fall) *requires MATH 1020	MATH 3800 Numerical Methods (Winter) COMP 2560 System Programming
MATH 3590 Complex Variables	STAT 2920 Introduction to Probability (Fall)

REQUIRED PHYS-3000/PHYS-4000 OPTIONS	
PHYS 4720 Magnetic Resonance Imaging	PHYS 4730 Radiobiology
PHYS 4250 Design / Application of Lasers (Fall)	PHYS 4670 Special Techniques in Health Physics
PHYS 4160 Condensed Matter Physics (Winter)	PHYS 4000 Technical Communication Skills (Winter)
PHYS 3600 Computational Physics	PHYS 3610 The Mathematics of Physics
PHYS 3250 Optics	PHYS 3910 Techniques in Experimental Physics II (Winter)

HONOURS MEDICAL PHYSICS (WITH CO-OP)-2021

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Fall term	Winter term	Sum
Year 1		
PHYS 1400 Introductory Physics I	PHYS 1410 Introductory Physics II	NOTE 1
MATH 1720/MATH 1760 Differential calculus	MATH 1730 Integral calculus NOTE 1	
CHEM 1100 Chemistry I	CHEM 1110 Chemistry II	
MATH 1250/MATH 1260 Linear algebra	PHYS 1500 From Symmetry to Chaos in the Universe	
COMP 1400 Introduction to Algorithms I	COMP 1410 Introduction to Algorithms II	
Year 2		
PHYS 2200 Waves and Oscillations	PHYS-2210 Modern Physics	PHYS 2980 Co-op Work term 1
MATH 2780 Vector Calculus	PHYS 2500 Classical Mechanics I	
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	CHEM 2300 Introductory Organic Chemistry	
Year 3		
PHYS 3100 Quantum Mechanics I	PHYS 4100 Quantum Mechanics II	PHYS 2980 Co-op Work term 1
PHYS 3200 Electricity and Magnetism I	PHYS 3210 Electricity and Magnetism II	
PHYS 3500 Classical Mechanics II	BIOC 2010 or 2015 Organic Chemistry of Biomolecules	
PHYS 3900 Experimental Physics Laboratory I	Option 2 NOTE 2	
Option 1 NOTE 2	Physics 3XXX or 4XXX 1	
Year 4		
PHYS 3980 Co-op Work term 2	PHYS 4980 Co-op Work term 3	
Year 5		
PHYS 4700 Radiological Physics	PHYS 4710 Medical Imaging	PHYS 2980 Co-op Work term 1
Physics 3XXX or 4XXX 2	PHYS 4130 Introduction to Statistical Mechanics	
Option 3	Physics 3XXX or 4XXX 3	
Option 4	Option 6	
Option 5	Option 7	

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HONOURS MEDICAL PHYSICS (WITH THESIS)-2021

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PHYS 3900 Experimental Physics Laboratory I	Option 2 NOTE 2
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Year 4	
PHYS 4700 Radiological Physics	PHYS 4710 Medical Imaging
Physics 3XXX or 4XXX 2	PHYS 4130 Introduction to Statistical Mechanics
Option 3	Physics 3XXX or 4XXX 3
Option 4	Option 5
PHYS 4900 Research	PHYS 4900 Research

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