SUGGESTED COURSE SEQUENCE
MEDICAL PHYSICS FALL 2020 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-2250, PHYS-2500, PHYS-3100, PHYS-3110, PHYS-3200, PHYS-3210, PHYS-3500, PHYS-3700, PHYS-4130, PHYS-4100, PHYS-4700, PHYS-4710 and two 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, GENG-2340.

(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.

University of Windsor

MEDICAL PHYSICS-2020

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

Fall term	Winter term
Year 1	
MATH 1720 Differential calculus	**MATH 1730 Integral calculus**
PHYS 1400 Physics I	**PHYS 1410 Physics II** NOTE 1
CHEM 1100 Chemistry I	**CHEM 1110 Chemistry II**
MATH 1250 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	
MATH 2780 Vector Calculus	**PHYS 2500 Mechanics**
MATH 2790 Differential Equations	Option 1 NOTE 2
PHYS 2200 EM Fields and Photons	**MATH 3550 Introduction to Fourier Series and Special Functions**
PHYS 2250 Optics	**PHYS 3700 Introduction to Medical Physics**
BIOL 1101 Cell Biology	**CHEM 2300 Introductory Organic Chemistry**
Year 3	
Option 2 NOTE 2	**PHYS 3100 Quantum Physics and Chemistry**
GENG 2340 Electrical and Computing Fundamentals	**PHYS 3210 Electromagnetic Waves**
PHYS 3500 Classical Mechanics I	**BIOC 2010 or 2015 Organic Chemistry of Biomolecules**
PHYS 3200 Electromagnetic Theory	Option 3 NOTE 2
CHEM 2400 Introductory Physical Chemistry I	Option 4 NOTE 2
Year 4	
PHYS 3110 Atomic and Molecular Spectra	**PHYS 4100 Quantum Mechanics I**
PHYS 4700 Radiological Physics	**PHYS 4130 Introduction to Statistical Mechanics**
REQUIRED PHYS-3000/PHYS-4000 PHYSICS OPTION 1	**PHYS 4710 Introduction to Medical Imaging**
Option 5	REQUIRED PHYS-3000/PHYS-4000 PHYSICS OPTION 2
Option 6	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. 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 1/2	
COMP 2120 Object-Oriented Programming Using Java	MATH 1020 Mathematical Foundations
COMP 2560 System Programming	
BIOL 1111 Biological Diversity (select to satisfy the pre-requisites for a class to be chosen in option 2)	

OTHER POSSIBLE OPTIONS 3/4	
BIOC 3100 Metabolism I (Fall)	MATH 3800 Numerical Methods (Winter)
MATH 3590 Complex Variables	STAT 2920 Introduction to Probability (Fall)
BIOL 2040 Human Physiology I (Fall)	BIOL 2021 Human Anatomy

REQUIRED PHYS-3000/PHYS-4000 PHYSICS OPTIONS	
PHYS 4250 Design / Application of Lasers (Fall)	PHYS 4000 Technical Communication Skills (Winter)
PHYS 4670 Special Techniques in Health Physics (Fall)	PHYS 4160) Condensed Matter Physics (Winter)

MEDICAL PHYSICS (WITH CO-OP) 2020

*Required courses are in **bold font,** Medical courses are in purple font, Co-op courses are in gold font*

Fall term	Winter term	Sum
Year 1		
MATH 1720 Differential calculus	**MATH 1730 Integral calculus**	NOTE 1
PHYS 1400 Physics I	**PHYS 1410 Physics II** NOTE 1	
CHEM 1100 Chemistry I	**CHEM 1110 Chemistry II**	
MATH 1250 Linear algebra	**PHYS 1500 From Symmetry to Chaos in the Universe**	
COMP 1400 Introduction to Algorithms I	**COMP 1410 Introduction to Algorithms II**	
MATH 1720 Differential calculus	**MATH 1730 Integral calculus**	
Year 2		
MATH 2780 Vector Calculus	**PHYS 2500 Mechanics**	
MATH 2790 Differential Equations	Option 1 NOTE 2	
PHYS 2200 EM Fields and Photons	**MATH 3550 Introduction to Fourier Series and Special Functions**	
PHYS 2250 Optics	**PHYS 3700 Introduction to Medical Physics**	
BIOL 1101 Cell Biology	**CHEM 2300 Introductory Organic Chemistry**	
Year 3		
Option 2 NOTE 2	**PHYS 3100 Quantum Physics and Chemistry**	PHYS 2980 Co-op Work term 1
GENG 2340 Electrical and Computing Fundamentals	**PHYS 3210 Electromagnetic Waves**	
PHYS 3500 Classical Mechanics I	**BIOC 2010 or 2015 Organic Chemistry of Biomolecules**	
PHYS 3200 Electromagnetic Theory	Option 3 NOTE 2	
CHEM 2400 Introductory Physical Chemistry I	Option 4 NOTE 2	
Year 4		
PHYS 3980 Co-op Work term 2	PHYS 4980 Co-op Work term 3	
Year 5		
PHYS 3110 Atomic and Molecular Spectra	**PHYS 4100 Quantum Mechanics I**	
PHYS 4700 Radiological Physics	**PHYS 4130 Introduction to Statistical Mechanics**	
REQUIRED PHYS-3000/PHYS-4000 PHYSICS OPTION 1	**PHYS 4710 Introduction to Medical Imaging**	
Option 5	REQUIRED PHYS-3000/PHYS-4000 PHYSICS OPTION 2	
Option 6	Option 7	

NOTE 1: Students who wish to "get ahead" on their schedule are advised to enrol in "MATH 2780 (62-215) Vector Calculus" and/or "MATH 2790 (62-216) 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. The following options are listed in an appropriate order to satisfy prerequisites and include a mixture of mathematics, computer science, and physics.

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COMP 2560 System Programming	
BIOL 1111 Biological Diversity (select to satisfy the pre-requisites for a class to be chosen in option 2)	

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BIOC 3100 Metabolism I (Fall)	MATH 3800 Numerical Methods (Winter)
MATH 3590 Complex Variables	STAT 2920 Introduction to Probability (Fall)
BIOL 2040 Human Physiology I (Fall)	BIOL 2021 Human Anatomy

REQUIRED PHYS-3000/PHYS-4000 PHYSICS OPTIONS	
PHYS 4250 Design / Application of Lasers (Fall)	PHYS 4000 Technical Communication Skills (Winter)
PHYS 4670 Special Techniques in Health Physics (Fall)	PHYS 4160) Condensed Matter Physics (Winter)

MEDICAL PHYSICS (WITH THESIS) 2020

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

Fall term	Winter term
Year 1	
MATH 1720 Differential calculus	**MATH 1730 Integral calculus**
PHYS 1400 Physics I	**PHYS 1410 Physics II** NOTE 1
CHEM 1100 Chemistry I	**CHEM 1110 Chemistry II**
MATH 1250 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	
MATH 2780 Vector Calculus	**PHYS 2500 Mechanics**
MATH 2790 Differential Equations	Option 1 NOTE 2
PHYS 2200 EM Fields and Photons	**MATH 3550 Introduction to Fourier Series and Special Functions**
PHYS 2250 Optics	**PHYS 3700 Introduction to Medical Physics**
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Year 3	
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PHYS 3200 Electromagnetic Theory	Option 3 NOTE 2
CHEM 2400 Introductory Physical Chemistry I	Option 4 NOTE 2
Year 4	
PHYS 3110 Atomic and Molecular Spectra	**PHYS 4100 Quantum Mechanics I**
PHYS 4700 Radiological Physics	**PHYS 4130 Introduction to Statistical Mechanics**
REQUIRED PHYS-3000/PHYS-4000 PHYSICS OPTION 1	**PHYS 4710 Introduction to Medical Imaging**
Option 5	REQUIRED PHYS-3000/PHYS-4000 PHYSICS OPTION 2
PHYS 4900 Research	**PHYS 4900 Research**

NOTE 1: Students who wish to "get ahead" on their schedule are advised to enrol in "MATH 2780 (62-215) Vector Calculus" and/or "MATH 2790 (62-216) 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.

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