DEPARTMENT OF PHYSICS ADVISING FORM

<u>HONOURS MEDICAL PHYSICS WITH THESIS (WITHOUT CO-OP)</u>

Student Name: _____

Student I.D. Number: _____ Year: ☐ First ☐Second ☐Third ☐ Fourth

Telephone Number: _____ E-mail: _____

REQUIREMENTS: Forty (40) courses
1. Two Thesis courses
2. Nineteen Physics courses
3. Six Math & Statistics courses
4. Five Chemistry/Biochemistry courses
5. Two Computer Science courses
6. One Biology course
7. Two courses from Arts, Humanities and Social Sciences
8. Three additional courses from any area

Standing Required For Continuation in Programs
GPA Cumulative Average 60% ☐   GPA Major Average 60% ☐

Standing Required For Graduation in Programs
GPA Cumulative Average 60% ☐   GPA Major Average 70% ☐

SUMMARY OF COURSES ATTAINED TOWARDS DEGREE

Physics Core (Major average)	☐ PHYS-1400 ☐ PHYS-1410 ☐ PHYS-1500 ☐ PHYS-2200 ☐ PHYS-2210 ☐ PHYS-2500 ☐ PHYS-3100 ☐ PHYS-3200 ☐ PHYS-3210 ☐ PHYS-3500 ☐ PHYS-3700 ☐ PHYS-3900 ☐ PHYS-4100 ☐ PHYS-4130 ☐ PHYS-4700 ☐ PHYS-4710 ☐ PHYS-4900 (fall) ☐ PHYS-4900 (winter) ☐ PHYS-3XXX or PHYS-4XXX _____ ☐ PHYS-3XXX or PHYS-4XXX _____ ☐ PHYS-3XXX or PHYS-4XXX _____	21
Mathematics	☐ MATH-1250 ☐ MATH-1720 ☐ MATH-1730 ☐ MATH-2780 ☐ MATH-2790 ☐ MATH-3550	6
Chemistry and Biochem	☐ CHEM-1100 ☐ CHEM-1110 ☐ CHEM-2300 ☐ CHEM-2400 ☐ BIOC-2010 or BIOC-2015	5
Computer Science	☐ COMP-1400 ☐ COMP-1410	2
Biology	☐ BIOL-1101	1
Arts, Humanities, and Social Science	☐ XXXX _____ ☐ XXXX _____ The University recognizes all economics courses (ECON) as social science / humanities courses.	2
Any Area of Study	☐ _____ ☐ _____ ☐ _____	3

HONOURS MEDICAL PHYSICS WITH THESIS-2024

*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	Option 1
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
CHEM 2300 Introductory Organic Chemistry	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 5
PHYS 4900 Research	**PHYS 4900 Research**

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)