

MATHEMATICAL PHYSICS – SPECIALIZATION (SCIENCE) – BACHELOR OF SCIENCE (HONOURS)

MAPH-P-BSH

Subject: Administered by the Departments of Mathematics and Statistics and Physics, Engineering Physics and Astronomy.

Plan: Consists of 105.00 units as described below.

Program: The Plan, together with sufficient electives to total 120.00 units, will lead to a Bachelor of Science (Honours) Degree.

Note: Requirements for this program have been modified. Please consult the 2022-2023 (<https://www.queensu.ca/academic-calendar/archive/2022-2023/arts-science/Calendar>) for the previous requirements.

Code	Title	Units
1. Core		
– MATHEMATICS AND STATISTICS CORE –		
A. Complete the following:		
MATH 110	Linear Algebra	6.00
MATH 120	Differential and Integral Calculus	6.00
B. Complete the following:		
MATH 210	Rings and Fields	3.00
C. Complete the following:		
MATH 231	Differential Equations	3.00
MATH 280	Advanced Calculus	3.00
MATH 281	Introduction to Real Analysis	3.00
D. Complete the following:		
STAT 268	Statistics and Probability I	3.00
STAT 269	Statistics and Probability II	3.00
E. Complete the following:		
MATH 326	Functions of a Complex Variable	3.00
MATH 328	Real Analysis	3.00
MATH 335	Mathematics of Engineering Systems	3.00
– PHYSICS CORE –		
F. Complete 6.00 units from the following:		6.00
PHYS 104	Fundamental Physics	
PHYS 106	General Physics	
G. Complete the following:		
PHYS 206	Dynamics	3.00
PHYS 212	Vibrations and Waves	3.00
PHYS 213	Computational Methods in Physics	3.00
PHYS 239	Electromagnetism	3.00
PHYS 242	Relativity and Quanta	3.00

PHYS 250	Foundations of Experimental Physics	3.00
----------	-------------------------------------	------

H. Complete the following:

PHYS 321	Advanced Mechanics	3.00
----------	--------------------	------

PHYS 344	Introduction to Quantum Mechanics	3.00
----------	-----------------------------------	------

PHYS 345	Quantum Physics of Atoms, Nuclei and Particles	3.00
----------	--	------

PHYS 350	General Laboratory	6.00
----------	--------------------	------

PHYS 372	Thermodynamics	3.00
----------	----------------	------

I. Complete the following:

PHYS 432	Electromagnetic Theory	3.00
----------	------------------------	------

PHYS 590	Research Thesis	6.00
----------	-----------------	------

2. Option

– MATHEMATICS AND STATISTICS OPTION –

A. Complete 3.00 units from the following: 3.00

MATH 341	Differential Geometry
----------	-----------------------

MATH 421	Fourier Analysis
----------	------------------

MATH 427	Introduction to Deterministic Dynamical Systems
----------	---

MATH 429	Functional Analysis and Quantum Mechanics
----------	---

MATH 436	Partial Differential Equations
----------	--------------------------------

B. Complete 9.00 units from the following: 9.00

BIOM at the 300-level or above

MATH at the 300-level or above

STAT at the 300-level or above

– PHYSICS OPTION –

C. Complete 3.00 units from the following: 3.00

PHYS at the 400-level or above

Electives

Elective Courses	15.00
------------------	-------

Total Units	120.00
--------------------	---------------

3. Notes

A. A maximum of 6.00 units from courses offered by other Faculties and Schools may be counted toward the program and/or Plan requirements. This includes courses in BMED, COMM, GLPH, HSCI, LAW, NURS, and courses in the Faculty of Engineering and Applied Science.