Physics Major

MATHS

1000

HSC Advanced Maths Band 4 or MATH1000 Introduction to Mathematical Modelling

MATH1010 Mathematical Modelling IA or MATH1015 Mathematical Modelling IA (Advanced)

MATH1020 Mathematical Modelling IB or MATH1025 Mathematical Modelling IB (Advanced)

MATH2010 Mathematical Modelling IIA

PHYSICS

PHYS1010 Modern Mechanics or PHYS1510 Engineering Physics

PHYS1020 Electric and Magnetic Interactions or PHYS1520 Physics for Electrical & Electronic Engineering

PHYS2010 Classical & Quantum Oscillations and Waves

PHYS2020 Electromagnetism and Relativity or PHYS2030 Structure of Matter

PHYS3010 Advanced Electromagnetism and Optics or PHYS3180 Condensed Matter & Statistical Physics

PHYS3810 Professional Physics or PHYS3140 Advanced Quantum Mechanics & Quantum Optics

FOSE3000 Science Capstone

POSSIBLE ELECTIVES

Two foundation units:
FOSE1015 – Statistical Concepts for Science
FOSE1025 – Scientific Computing

MATH2020 Mathematical Modelling IIB

PHYS2030 Advanced Electromagnetism

PHYS3140 Professional Physics

PHYS3180 Advanced Quantum Mechanics & Quantum Optics

PHYS3110 Data Science in Astrophysics

BScEng only

MATH2020 Mathematical Modelling IIB

ASTR2020 Advanced Astronomy

MATH3905 Mathematical Methods

ASTR3010 Astrophysics

MATH3906 Partial Differential Equations

• Arrows indicate prerequisites within years
Astronomy & Astrophysics Major

**MATHS**

- **HSC Advanced Maths Band 4** or **MATH1000 Introduction to Mathematical Modelling**
- **MATH1010 Mathematical Modelling IA** or **MATH1020 Mathematical Modelling IB**
- **MATH1015 Mathematical Modelling IA (Advanced)** or **MATH1025 Mathematical Modelling IB (Advanced)**
- **MATH2010 Mathematical Modelling IIA** or **PHYS2020 Electromagnetism and Relativity**
- **MATH2020 Mathematical Modelling IIB** or **PHYS2020 Electromagnetism and Relativity**
- **MATH1020 Mathematical Modelling IA (Advanced)** or **PHYS2040 Electromagnetism and Optics**
- **MATH2110 Applied Mathematics II**

**ASTRONOMY**

- **PHYS1010 Modern Mechanics** or **PHYS1020 Electric and Magnetic Interactions**
- **PHYS1520 Physics for Electrical & Electronic Engineering**
- **PHYS2010 Classical & Quantum Oscillations and Waves**
- **PHYS2020 Electromagnetism and Relativity**
- **PHYS2040 Electromagnetism and Optics**
- **PHYS2110 Advanced Astronomy**
- **PHYS3010 Advanced Electromagnetism and Optics**
- **PHYS3110 Data Science Techniques in Astrophysics**
- **PHYS3120 Advanced Quantum Mechanics & Optics**
- **PHYS3140 Advanced Quantum Mechanics & Optics**
- **PHYS3180 Condensed Matter & Nanoscale Physics**
- **PHYS3300 Extragalactic Astronomy**
- **PHYS3810 Professional Physics and Astronomy**
- **PHYS3820 Advanced Physics & Data Science**

**POSSIBLE ELECTIVES**

- **Two foundation units:**
  - FOSE1015 – Statistical Concepts for Science
  - FOSE1025 – Scientific Computing
- **MATH2020 Mathematical Modelling IIB**
- **MATH1015 Mathematical Modelling IA (Advanced)**
- **MATH2110 Applied Mathematics II**
- **PHYS3010 Advanced Electromagnetism and Optics**
- **PHYS3140 Advanced Quantum Mechanics & Optics**
- **PHYS3180 Condensed Matter & Nanoscale Physics**
- **PHYS3300 Extragalactic Astronomy**
- **PHYS3810 Professional Physics and Astronomy**

**Notes:**
- Arrows indicate prerequisites within years
- BS-BEng only
- HSC Advanced Maths Band 4 or MATH1000 Introduction to Mathematical Modelling