

## BSc (6901) Major and Minors Offered

### 1. Physics Major

- New curriculum structure since 2018; Learn the skill set first
- **Themes** (can choose 0, 1, or 2): Astrophysics, Computational Physics, Experimental Physics, Theoretical Physics

### 2. Physics Major (Intensive)

- Solid foundation on the subject in both breath and depth
- Targeted for students who want to pursue further studies
- **Completion of Intensive Majors and/or themes are important factors in HKU physics postgraduate admission consideration**

### 3. Physics Minor

- Basic foundation of Physics
- Helpful for study of other science and non-science disciplines

### 4. Astronomy Minor

- Suitable for both science and non-science students
- Training on both observational and theoretical aspects
- Department will continue to aggressively pursue astronomical research and recruit postgraduate students in astronomy.

#### Why Study Physics at HKU?

Understand how the world works  
Do some fun experiments  
Participate in forefront research  
Develop quantitative, analytical & problem solving skills



## Physics Major (Intensive) Curriculum in 2021 – 22

PHYS1150\*  
PHYS2150\*  
PHYS2155\*  
PHYS2055\*  
PHYS2250  
PHYS2261  
PHYS2255  
PHYS2265

#### Skill Set Courses

- Computing
- Mathematics
- Model building
- Problem solving

#### Introductory Core Courses

- Calculus-based physics incorporated with vectors
  - Stress daily-life connection
- Mechanics, Electricity & magnetism, Heat & thermodynamics, Quantum physics

#### Advanced Core Courses

- Formal training in physics with more abstraction
  - Advanced mathematical skills required
  - Core university undergraduate education

#### Selection of Themes

- (1) Course cluster to build expertise in specific area
- (2) Capstone project related to the theme
- (3) Enhanced training in physics for postgraduate studies

#### Astrophysics Theme

Astronomy laboratory  
Cosmology  
Interstellar medium  
Observational astronomy  
Planetary science ...

#### Computational Physics Theme

Computational physics  
Data analysis & modeling in physics  
Machine learning in physics  
Theoretical physics ...

#### Experimental Physics Theme

Atomic & nuclear physics  
Laser & spectroscopy  
Physics laboratory  
Physical optics  
Solid state physics ...

#### Theoretical Physics Theme

Adv electromagnetism  
Adv quantum mechanics  
General relativity  
Particle physics  
Theoretical physics ...

For non-Intensive major, require 2 out of the \* courses (also PHYS2160)

## Our Research Groups

- Astrophysics
- Centre of Theoretical & Computational Physics
- Condensed Matter Experiments
- Condensed Matter Theory
- Nuclear Physics Experiments
- High Energy Physics Experiments
- Material Science
- Quantum Information Theory

## Where did our students go for further studies in recent years?

- Harvard University
- Princeton University
- Stanford University
- MIT
- Columbia University
- University of Oxford
- University of Cambridge
- McGill University
- Brown University
- University of Illinois at Urbana-Champaign
- Imperial College London
- Johns Hopkins University
- University of Toronto
- Universität Hamburg
- Max Planck Institute for Radio Astronomy
- Max Planck Institute for Extraterrestrial Physics
- Max Planck Institute for Astronomy
- Leiden University

Sample Major in Physics (Intensive)  
Year 1 & 2 Curriculum (minimum)

Select 2 out of 6

	Semester 1	Semester 2
Year 1	PHYS1150 Problem Solving PHYS1650 Nature <u>or</u> COMP1117 MATH 1013 <u>or</u> STAT 1603 XXX XXX XXX	PHYS2250 Intro Mechanics PHYS2055 Intro Relativity <u>or</u> PHYS2255 Intro E&M XXX XXX XXX
Year 2	PHYS2150 Method I PHYS2261 Intro Heat & Thermo PHYS2265 Intro Quantum Phy XXX XXX	PHYS2155 Method II PHYS2055 <u>or</u> PHYS2255 PHYS2160 Intro Compu Phys <u>or</u> PHYS2650 Modern Astro XXX XXX

Sample Major in Physics (Intensive, astrophysics theme) OR  
Major in Physics & Minor in Astronomy Year 1 & 2 Curriculum

	Semester 1	Semester 2
Year 1	PHYS1150 Problem Solving PHYS1650 Nature of Univ XXX XXX XXX	PHYS2250 Intro Mechanics PHYS2055 Intro Relativity <u>or</u> PHYS2255 Intro E&M PHYS2650 Modern Astro XXX XXX
Year 2	PHYS2150 Method I PHYS2261 Intro Heat & Thermo PHYS2265 Intro Quantum Phy XXX XXX	PHYS2155 Method II PHYS2055 <u>or</u> PHYS2255 XXX XXX XXX

\*\* Sample curriculum for reference only, more sample curriculum available at the Department webpage.  
You should consult your course schedule with Course Selection Advisor for your own selection.