歡迎您  WELCOME!
Department of Physics
The Chinese University of Hong Kong
Introduction to the Undergraduate Program

New student orientation
21/08/2012

Physics dept. webpage: http://www.phy.cuhk.edu.hk
student handbook: http://www.cuhk.edu.hk/aqs
Our Goals

Train our students to:

- have a good grasp of the fundamental knowledge and skills in physics;
- acquire a solid foundation in physics for the pursuit of further study through active learning experiences;
- understand and appreciate how physics works in nature as well as its important applications in the modern society;
- develop the generic capabilities that are important for future career and lifelong learning through a flexible curriculum and a variety of learning experiences.
PHYSICS PROGRAMME OBJECTIVE

ATTITUDE

· 嚴謹、堅毅 rigorous and resolute
· 追求卓越 pursuit of excellence
· 強烈責任感 strong sense of responsibility
· 積極主動 proactive
· 自學精神 motivated in self-learning
· 自信提升 self confidence

SKILLS

· 研究及自學基本技巧: 數理方法、實驗、電算 basic skills for research and self learning: mathematical and experimental
· 物理學家之解難及思考方法 physicists’ problem solving and analytical skills
· 溝通、人際 communication, interpersonal
· 閱讀 reading
· 時間管理 time management

KNOWLEDGE

· 堅實及均衡的物理基礎知識 solid and balanced training in physics
· 數學及實驗方法 mathematical and experimental methods
Who’s in charge?

YOU!

You are responsible for your own learning!

But you are not alone … we are there to help

Advisors, teachers, TAs, fellow students, PHY alumni

Every student is assigned an advisor and you will meet your advisor today
Undergraduate Curriculum
Physics courses
63-65 units

Minor/electives
14-16 units

General Ed.
15 units

P.E.
2 units

English
3 units

99 units total (minimum)

Each unit ~ 3 hours of work per week.

Normally take 12-19 units (can apply to take up to 21) per semester.

B.Sc. 3-year physics program:
Physics B.Sc. Program

Common courses
38 units

Stream required courses
- Theoretical
  15 units
- Physics
  1 unit

Electives
- 12 units
- 24 units
65 units
63 units
Common courses (38 units)

• Intro. to Mechanics 2001、Intro. to Thermal Physics 2002、Intro. to E&M 2003、Quantitative Methods 2004+2005
• Basic Computational Physics 2351
• Mechanics 3911
• E&M 3941
• Quantum Physics I , II 3201, 3202
• Physics Lab I, II 2811, 2822
• Student Oriented Teaching STOT (Physics Problems) I, II, 2011, 2022
• Seminar 4911

Students: The Department provides separate courses for you (3-year curriculum) -- don’t be confused by the 4-year courses in course taking!
Required Courses

common

Physics stream

Enrichment Stream in Theoretical Physics

Seminar
4911

EM &
Optics
4211

Stat.
Mech.
4260

QM I
4221

E&M
3941

Intro.
EM 2003

Intro.
Thermal
Phy. 2002

STOT
2011, 2022

EM &
Optics
4211

Stat.
Mech.
4260

QM I
4221

Q. Phy. II
3202

Q. Phy. I
3201

Intro. Mech.
3911

Intermediate
Mechanics
3922

Methods of Theo.
Phy. 3601

Basic Comput.
Phy. 2351

Quant. Methods
2004 2005

Intro. Mech
2001

Physics Lab
3811

Phys. Lab
2811, 2812

Phy. Lab
3811

Methods of Theo.
Phy. 3601

Basic Comput.
Phy. 2351

Quant. Methods
2004 2005

Intro. Mech
2001

Intermediate
Mechanics
3922

Physics stream

Enrichment Stream in Theoretical Physics
Physics Stream

**Required (1 unit):**

- Phys. Lab III 3811

**Electives (24 units =15+9):**


Enrichment Stream in Theoretical Physics

Required (15 units):

  Int. Mech. 3922  
  EM Theory & Optics 4211  
  QM I 4221  
  Stat. Mech. 4260

Electives (12 units):

- Theory: Solid State 4950  
  Relativity 4460  
  Physics in Meteorology 4520  
  Astrophysics 4530  
  Methods in Theo. Phy. II 4602  
  QM II 5410  
  Classical ED 5420  
  Solid State Theory 5430  
  Methods in Theo. Phy. III 5570  
  Topics in Theoretical Physics 5510-5550  
  Quantum Info. 5580

- Computational: Computer Sim. of Phy. Systems 3350

- Final Year Projects 4610 or 4620
Physics Stream

Typical course pattern:
1\textsuperscript{st} sem: 2011, 2001, 2004, 2351, 2811 (12)
2\textsuperscript{nd} sem: 2022, 2002, 2003, 2005, 2822 (11)
3\textsuperscript{rd} sem: 3911, 3941, 3201, 3811 (11)
4\textsuperscript{th} sem: 3202, electives (7-10)
5\textsuperscript{th} sem: 4911, electives (10-13)
6\textsuperscript{th} sem: electives (9-12)

All students are in Physics stream. Qualified students may apply to switch to Enrichment Stream in Theoretical Physics in or after 3\textsuperscript{rd} semester.
Enrichment Stream in Theoretical Physics

Typical course pattern:


3rd sem: 3601, 3911, 3941, 3201 (13)

4th sem: 3922, 3202, electives (10-13)

5th sem: 4911, 4221, 4260, electives (10)

6th sem: 4211, electives (9)
Extracurricular Learning Opportunities

SURE, OPUS, STAR, and more...
[but you need to get prepared...]
Research & Internship

Dept. strongly encourages students to take up research projects and/or internship, eg.: Overseas Program for Undergraduate Students (OPUS), Summer Undergraduate Research Exchange (SURE), Summer Teacher Apprenticeship (STAR), Special projects, internship opportunities (HKO, Space Museum, etc.)

University, colleges, and Sci. Fac. also provide exchange opportunities.
Research opportunities for undergraduates

- Dept. strongly encourages students to join research groups
- May earn credits (special experimental/theoretical projects)
- Final-year projects (PHY4610, 4620)

Undergraduates taking up projects
Selected students can take up summer research projects in leading groups abroad, with financial support from the dept. Eg.: planetary science (Caltech), dark energy survey (UIUC), nuclear physics (MSU/NSCL, UIUC), biophysics (Brown), …

August 2012: 76 have completed the program (7 in 2012)
59 have continued on to graduate study; 40 admitted to PhD programs
本科生海外交流計劃
(Overseas Program for Undergraduate Students)

www.phy.cuhk.edu.hk/opus

Since 2006

Dept. sponsors 4 – 8 students each year to take up 1 semester of exchange and 1 summer research at U. C. Berkeley, Fudan Univ., and Peking Univ.

August, 2012: 27 have completed the program
18 have continued on to graduate study; 11 for PhD
Other exchange programs

Science Faculty:
http://www.cuhk.edu.hk/sci/ssep/

University:
http://www.cuhk.edu.hk/oal/

Colleges:
http://www.cuhk.edu.hk/ccc/chi/students_12sep.htm
http://www.cuhk.edu.hk/uc/exchange/exchangeindexc.htm#
http://www.cuhk.edu.hk/shaw/chi/student_prog.html#prog1

Map of alumni overseas: http://maps.google.com/maps?ie=UTF&msa=0&msid=111514872469039539967.00044a2dd8eae8cd1d386
暑期教師學徒計劃

(Summer Teacher Apprenticeship)

www.phy.cuhk.edu.hk/star

Dept. sponsors 5-10 each summer to work in local secondary schools

Since 2002

August 2012: - 89 have completed the program
- 30 have continued on to graduate study, 7 for PhD
- 30 have become teachers
暑期实习計劃

(Summer Internship)


Placement at Hong Kong Observatory: summer or full-year Since 2005

August 2012:
- 28 have completed the program
- 19 have continued on to graduate study, 9 for PhD
Announcements

• If you need more MATH preparation before semester beings & training in Year 1, contact us.
• Questions on curriculum, course selection, etc.: contact
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