歡迎您  WELCOME!
Department of Physics,
The Chinese University of Hong Kong
Introduction to the Undergraduate Program
New student orientation
19/08/2011

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

Programme Learning Outcomes

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: math/computational/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
Undergraduate Curriculum
For students in the 3-year program:

Each unit ~ 3 hours of work per week.

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

- **Physics courses**: 63-65 units (minimum) of work per week.
- **English**: 3 units
- **General Ed.**: 15 units
- **Minor/electives**: 14-16 units

For students in the 4-year program:

- **Physics courses**: 63-65 units
- **General Ed.**: 21 units
- **Minor/electives**: 14-16 units
- **Foundation courses**: 21 units
- **PE**: 2 units

123 units total (minimum)
Foundation courses

21 units total

Faculty
9 units

May take a placement exam on
31/08/11 to exempt PHYS1001
(contact PHY General Office)

Languages
12 units

1. General Phys. (I) 1001
2. Math. MATH1010
   CHEM1070/1870 - or
   Statistics STAT1310

1. ELTU2450 or ELTU2456
2. HKCEE Eng ‘A(5*)’ or ‘B(5)’: 2 from
   ELTU2201, 2392, 2500, 2501, 3102, 3103,
   3112, 3402, 3501
   HKCEE Eng ‘C(4)’ or below: 2 from
   ELTU1001, 1106, 1107, 1109, 1110
3. 1 from CHLT1510, 1520, 1586, 1814
Physics Program

Common courses
- 38 units

Stream required courses
- Theoretical
  - 15 units
- Physics 1 unit
- 24 units

Electives
- 12 units
- 24 units

Total:
- 65 units
- 63 units
Common courses (38 units)

- Basic Computational Physics 2351
- Mechanics 3011
- E&IM 3041
- Quantum Physics I, II 3201, 3202
- Physics Lab I, II 2811, 2822
- Student Oriented Teaching STOT (Physics Problems) I, II, 2011, 2022
- Seminar 4011
**Required Courses**

- **Physics stream**
  - **Intermediate Mechanics 3022**
  - **Methods of Theo. Phy. 3601**
  - **Basic Comput. Phy. 2351**
  - **Quant. Methods 2004 2005**
  - **Intro. Mech. 2001**

- **Enrichment Stream in Theoretical Physics**
  - **Q. Phy. II 3202**
  - **Q. Phy. I 3201**

- **Common**
  - **Seminar 4011**
  - **EM & Optics 4211**
  - **Stat. Mech. 4260**
  - **QM I 4221**

- **INTRO**
  - **PHY 2002**
  - **E&M 2003**
  - **Intro. Thermal Phy. 2002**

- **ENRICHMENT**
  - **PHY. LAB 2011, 2022**
  - **Q. PHY. II 3202**
  - **Q. PHY. I 3201**
  - **STOT 2011, 2022**
**Physics Stream**

**Required (1 unit):**
- Phys. Lab III 3811

**Electives (24 units =15+9):**
Enrichment Stream in Theoretical Physics

Required (15 units):
- Int. Mech. 3022  
- EM Theory & Optics 4211  
- QM I 4221  
- Stat. Mech. 4260

Electives (12 units):
- Theory: Solid State 4450  
- 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: 3011, 3041, 3201, 3811 (11)
4\textsuperscript{th} sem: 3202, electives (7-10)
5\textsuperscript{th} sem: 4011, 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, 3011, 3041, 3201 (13)
4th sem: 3022, 3202, electives (10-13)
5th sem: 4011, 4221, 4260, electives (10)
6th sem: 4211, electives (9)
Extracurricular Learning
Opportunities
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. E.g.: planetary science (Caltech), dark energy survey (UIUC), nuclear physics (MSU/NSCL, UIUC), biophysics (Brown), …

August 2011: 69 have completed the program (7 in 2011)
52 have continued on to graduate study; 37 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, 2011: 23 have completed the program
15 have continued on to graduate study; 10 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/ms?ie=UTF8&msa=0&msid=11151872469039539967.00044a2dd8eae8cd1d386
(Summer Teacher Apprenticeship)

Since 2002
Dept. sponsors 5-10 each summer to work in local secondary schools

June 2011: - 66 have completed the program, 6 more in 2011 -26 have continued on to graduate study, 5 for PhD -22 have become teachers
Placement at Hong Kong Observatory: summer or full-year Since 2005

June 2011:
- 22 have completed the program, 4 more in 2011
- 17 have continued on to graduate study, 7 for PhD
Announcements

• Contact me if you need MATH tutoring during August
• Questions about curriculum, course selection, etc.: contact M. –C. Chu, mcchu@phy.cuhk.edu.hk, 26096364, Rm. 106, Science Center N. Block
歡迎您  WELCOME!