香港中文大學
The Chinese University of Hong Kong

http://www.sls.cuhk.edu.hk/index.php/student-ens

ENVIRONMENTAL SCIENCE PROGRAMME STUDENT HANDBOOK 2012 – 3 YEAR CURRICULUM

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1. Director's Message

Dear Students,

Welcome to the Environmental Science Program in School of Life Sciences.

Environmental issues are related to human sustainability on earth and your science training has a key role to play in understanding, improving and resolving these issues such as energy sustainability, ecological degradation, pollution control and waste management. Our program has prepared for you basic training in environmental science, ecology, conservation, environmental chemistry, instrumentations, toxicology and environmental impact assessments, different advanced topics from industrial chemistry, environmental biotechnology, environmental health are also available. Students are suggested to focus their studies on either one of the following concentrations: Environmental Management or Environmental Technology. Students are also encouraged to participate our summer internship program, summer projects, site visits, field trips, volunteer jobs in green groups, and select your minor courses in Biology, Geography and Resource Management, Energy in Environmental Engineering or Earth System Science.

This handbook outlines our curriculum designs. Don't hesitate to find me or contact our staff if you have any queries on your study or school life.

Yours sincerely,

KM CHAN (kingchan@cuhk.edu.hk)

2. Outcomes Based Teaching and Learning

OUR MISSIONS

1. To provide students with a wide ***multidisciplinary*** background of Environmental Science.

2. To prepare students with a high level of competence in ***scientific understanding*** of various environmental issues.

Expected Learning Outcomes:

Our graduates are able to:

1. Acquire a sense of ***professionalism*** and work independently with good communication, analytical, research and technical skills;
2. Develop themselves as ***active researcher in various areas*** of environmental management and technology;
3. Adapt to the changing social and research environments to stay ***competitive in the job markets and further studies***.

Knowledge Outcomes:

1. A ***broadly-based core*** covering environmental chemistry, conservation biology, toxicology, environmental health and environmental impact assessment;
2. ***Basic principles and methodologies*** of strategic planning, policy development, pollution control and waste treatment, biodiversity and environmental impact assessment;
3. ***In-depth understanding of a particular field of study*** (e.g. chemical treatment, toxicology, bioremediation).

Skills Outcomes (generic competencies and transferable skills):

1. Communications, oral and writing
2. Leadership
3. Creativity
4. Team work
5. Use of information technology
6. Perform quantitative analyses with basic statistics
7. Propose innovative ideas
8. Analytical skills for problem solving
9. Critical thinking

Summer Labs, Summer Internships and Summer projects

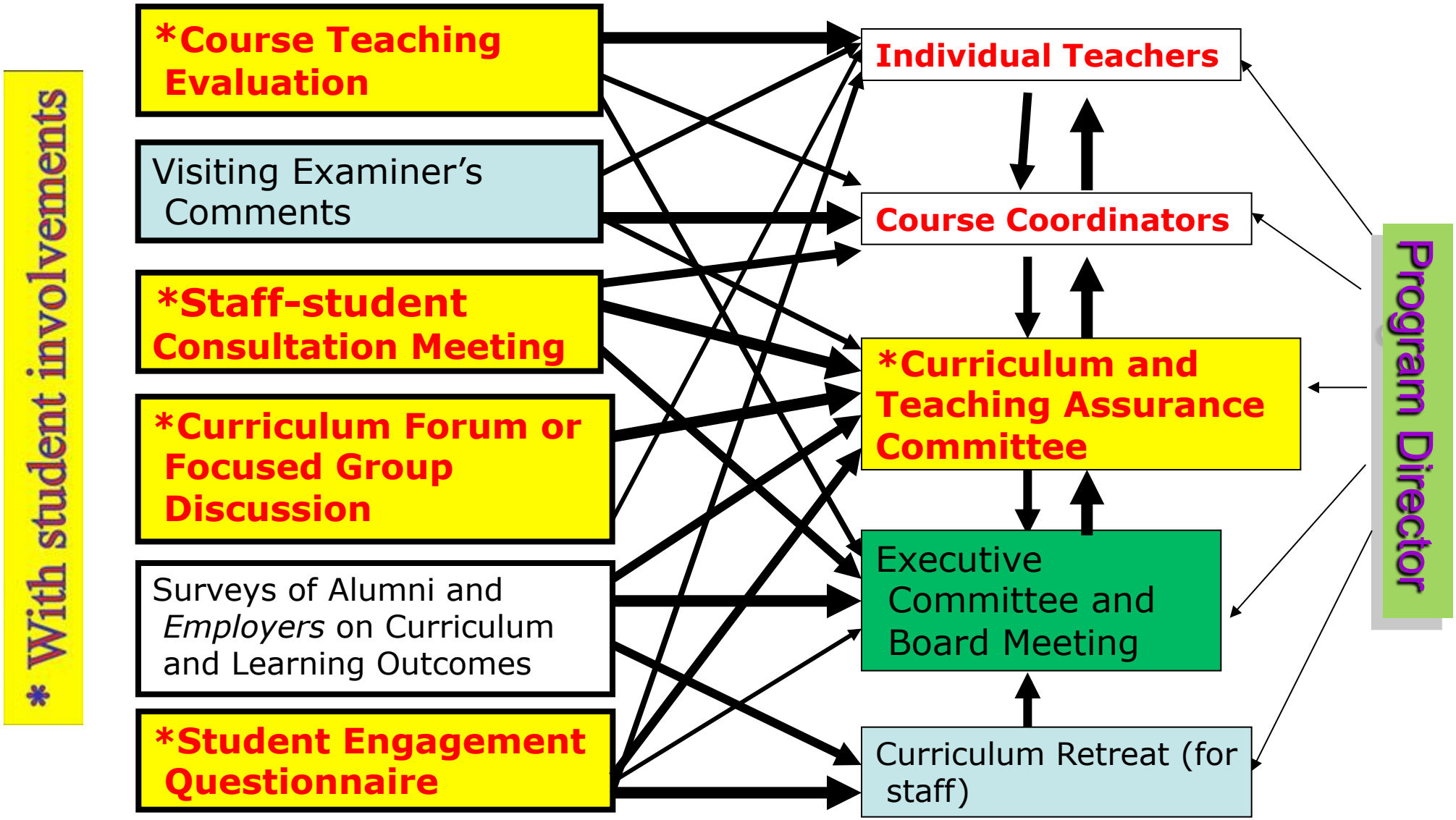
Attitudes/Values Outcomes:

1. ***Aware of latest developments*** in the field of Environmental Science;
2. ***Propose new ideas*** to problem solving;
3. ***Able to adapt*** in the changing environment and job market.

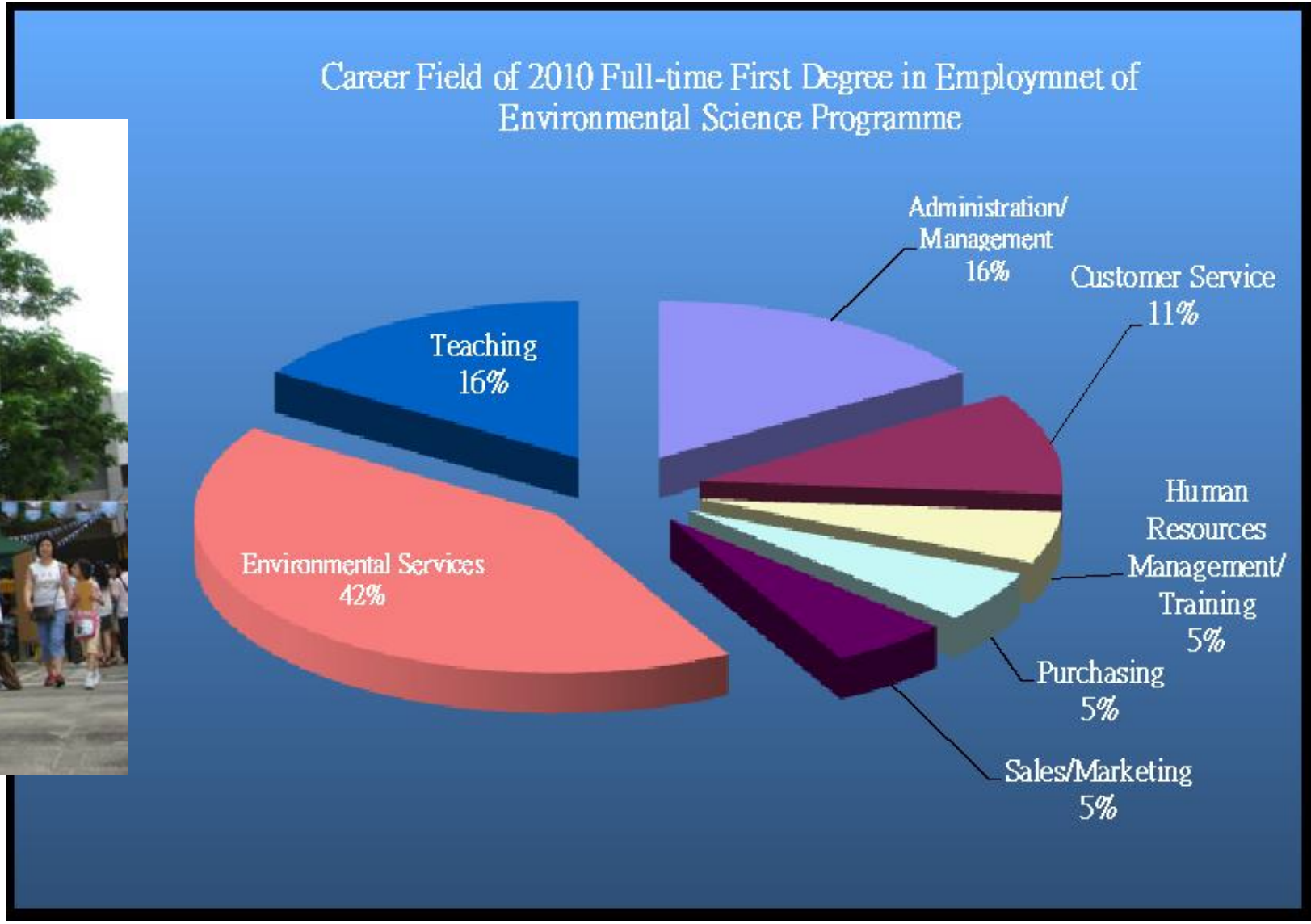
Teaching Quality Assurance

1. ***Feedback mechanisms***
2. ***Assessments by Management Teams*** to tackle problems immediately
3. ***Monitoring*** of Actual Learning Outcomes
4. ***Constant review of course contents, evaluation methods, learning activities,*** and arrangement of staff duties to improve learning environment

Teaching Quality Assurance Mechanisms




環境科學
Environmental Science


Career Field of 2010 Full-time First Degree in Employmnet of Environmental Science Programme
Administration/ Management 16%
Customer Service 11%
Teaching 16%
Human Resources Management/ Training 5%
Environmental Services 42%
Purchasing 5%
Sales/Marketing 5%

Miss W Y Yiu
姚詠儀

Environmental Protection Officer, EPD, HKSAR Government

The Environmental Science Program provided me basic knowledge and equipped me well to be a competent scientist, who possesses independent research skill and analytical mind. I gained knowledge in following major areas: environmental chemistry and technologies, ecology and the conservation strategy, fundamental biochemistry, environmental toxicology and the related research methods. I was also exposed to the application of environmental concepts such as the environmental impact assessment (EIA) and environmental and resource management. I had conducted an EIA for a project in small scope and carried out a literature review on an environmental toxicant which was a potential cancer inducer during my academic years.

Scholarships

Chiap Hua Cheng's Foundation Scholarship (So On Man 2002; Wong Chiu Yi, 2009)

CUHK Convocation Outstanding Services and Creativity Student Award (Lee Ching Yuen, 2008)

Joyce Kuok Foundation Scholarship (Ng Kam Yan, 1999)

Li Po Chun Charitable Trust Fund (So On Man, 2002)

Tsang Sim Tim Scholarship (UC)(So On Man, 2003)

Sir Edward Youde Memorial Fellowship (So On Man, 2004; Yeung Chung Wing, 2008)

Mr & Mrs Ng Sui Cheong Memorial Prize (Tsang Yin Ting, 2004, 05; Mak Hoi Ting, 2006; Ng Chi Chung, 2008; Shum Him Sum,2009; Lee Kwan Yin, 2011; Hui Ling Chui, 2012)

Y W Kwok Scholarship 2003/04 (Tsang Yin Ting, 2004)

(Chevening Scholarship Programme)
Aberdeen Scott Chevening Scholarship at the University of Aberdeen to study Environmental Management:
1) Anna Chung Ying Ying 1996-97
2) Law Kar Lam, 2000-01
3) Kwok Wing Chung, 2001-02
4) Cheng Yee Man, Shirley 2002-03
5) So On Man, Cammy 2003-04
6) Woo Ming Chuan, 2010-11


台北經濟文化辦事處2011/12
獎學金得主

修讀環境管理及工程學全日制理學碩士課程的二年級生黃巧詠同學，最近憑優異成績獲台北經濟文化辦事處頒發五千元獎學金。

黃同學是香港中文大學環境科學理學學士，除了學業成績出眾，亦積極參與課外活動，資兼文武，曾任世界自然基金會2010年「氣候正能量大使」，現為長春社夜行生態動物導賞員及樹木大使。

3. University Required Courses

- 15 units **General Education** courses
- 2 units of **Physical Education** courses
- 3 units of **English Language** courses
- At least 60 units of major **Environmental Science courses**
- Remaining units in **minor/elective courses**; all students must have earned at least 99 units to graduate.

General Education

- Requires 15 units of General Education Courses

- Courses required by the University and those designed by the College of his/her affiliation

- Science students cannot take certain science-related topics (please refers to your General Education Selection Guide)

Physical Education

2 units in first year of attendance

PHED1011/1012 Track and Field

PHED1013/1014 Gymnastics

PHED1015/1016 Swimming

PHED1017/1018 Physical Conditioning

PHED1021/1022 Basketball

PHED1023/1024 Volleyball

PHED1025/1026 Softball

PHED1027/1028 Team Handball

PHED1029 Soccer (Men)

PHED1031/1032 Tennis

PHED1033/1034 Squash

PHED1035 Aerobic Dance

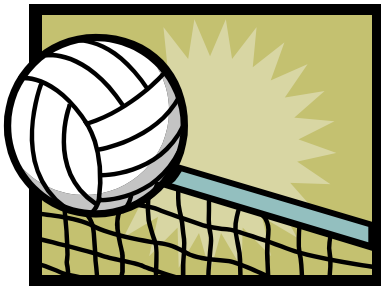
PHED1037 Folk Dance

PHED1041/1042 Badminton

PHED1043/1044 Table Tennis

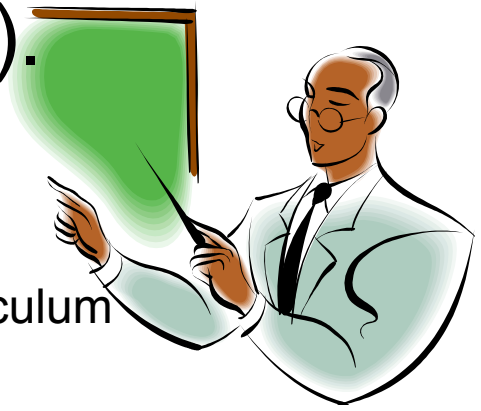
PHED1010 (1st term) Special P.E.

PHED1030 (2nd term) Special P.E.



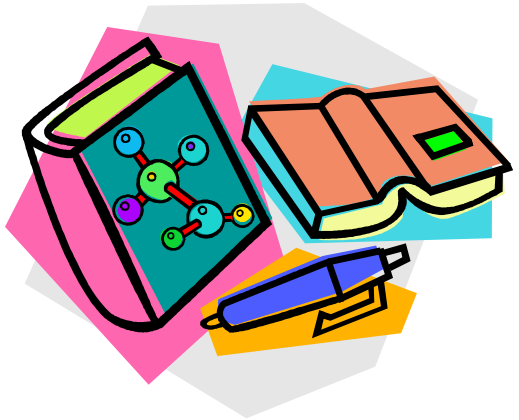
University Requirements

- A student shall take no less than 12 units of courses in any term.
- A student shall take no more than 21 units of courses in a term.
- GPA < 2 must see level 2 advisors; < 1.5 on probation (twice, you are out).



4. Environmental Science Program Requirements

At least 99 units to graduate



- **General Education (15 units)**
- **Major Courses (60 units)**
  - **Year 1 Core Courses (16 units)**
  - **Year 2 Core Courses (15 units)**
  - **Year 3 Core Courses (6-8 units)**
  - **Major Elective Courses (>23 units)**
- **Physical Education (2 units)**
- **Other Courses (>22 units)**

Recommended Course Pattern

First year of Attendance — 16 units

- 1st term: BCHE2030, BIOL2120, LSCI2000, 2002 (9 units)
- 2nd term: ENSC2270 , BIOL2210/2213 (7 units)

Second year of Attendance — 15 units

- 1st term: ENSC2515/2517, plus one to two elective courses
- 2nd term: ENSC3320/3920, 3415/3417, plus optionally one elective courses

Final Year of Attendance — 6 units

- 1st term: ENSC4020, or 4000 and ENSC3000, or ENSC3001 plus one to two elective courses
- 2nd term: ENSC4221, or 4001 plus one to two elective courses

Major Electives — **23 units**

Total: 60 units

ENSC Core Course

1/3 (Basic Courses)

- Cell Biology (BIOL2120)
- Research and Communication Skills in Life Sciences (LSCI2000)
- Basic Laboratory Techniques in Life Sciences (LSCI2002)
- Fundamentals of Biochemistry (BCHE2030)
- Introduction to Environmental Science (ENSC2270)
- Ecology/Lab (BIOL2210/2213)

2/3 (Fundamental & Specialized Courses)

- Environmental Chemistry/Lab (ENSC2515/2517)
- Environmental Instrumentation Techniques/Lab (ENSC3415/3417)
- Biochemical Toxicology/Lab (ENSC3320/3920)

3/3 (Research/Guided Study)

- Directed Research/ Literature Research in Environmental Science (ENSC4020/4221/4000/4001)
- Environmental Science Internship (ENSC3000)
- Field Study(ENSC3001)

FINAL Year of Attendance

- First term
  - ENSC4020 Directed Res in Environ Sci I 2 units

  or
  - ENSC3000 Environmental Science Internship 2 units

    or ENSC3001 Field Study 2 units

  and
  - ENSC4000 Literature Research in ENS I 2 units
  - (2 Major elective/minor courses) 4 units
- Second term
  - ENSC4221 Directed Res in Environ Sci II 4 units

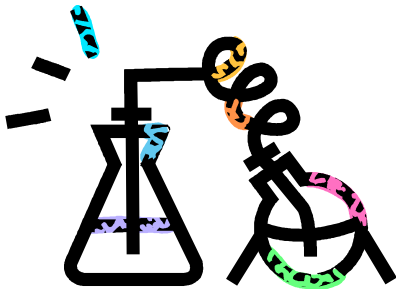
    or ENSC4001 Literature Research in ENS II 2 units
  - (2 to 3 Major elective/minor courses) 4-6 units

Total: 10-16 units

Major Elective Courses –

23 units from the following courses

ENSC3230	Principles of Environmental Protection and Pollution Control	3 units
ENSC4240/4242	Environmental Impact Assessment/Lab	3/2 units
ENSC4250	Environmental Health	3 units
ENSC4260	Conservation Biology	3 units
ENSC4310/4510	Methods in Toxicological Research/Lab	3/2 units
ENSC4525	Advanced Environmental Chemistry	3 units
ENSC4535	Chemical Treatment Processes	3 units



Course offered by Department/Programme of Science Faculty

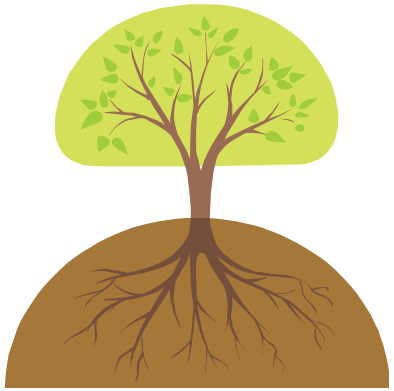
Course Code	Course Title	Unit
BIOL3012	Biodiversity Laboratory I	2
BIOL3022	Biodiversity Laboratory II	2
BIOL3410	General Microbiology	3
BIOL3550	Plant Biology	4
BIOL3610	Invertebrate Form and Function	2
BIOL3620	Vertebrate Life	2
BIOL3710	Marine Biology	3
BIOL4012	Field and Environmental Biology	2
BIOL4260	Conservation Biology	3
BIOL4220	Environmental Biotechnology	3
CHEM4400	Advanced Analytical Chemistry	2
CHEM4430	Practices in Testing Laboratory	2
CHEM4788	Chemical Applications in Forensic Science	2
ESSC2010	Solid Earth Dynamics	3
ESSC2020	Climate System Dynamics	3
ESSC3100	Physical Geology	3
ESSC3200	Atmospheric Science	3
ESSC3300	Introduction to Physical Oceanography	3
ESSC3600	Understanding Our Biosphere	3
ESSC4400	Hydrology	3
ESSC4510	Earth System Science Data Technology and Analyses	3
MBTE2010	Diversity of Life: Applications and Sustainability	3
STAT3210	Statistical Techniques in Life Sciences	3

Course offered by Department/Programme of other Faculties

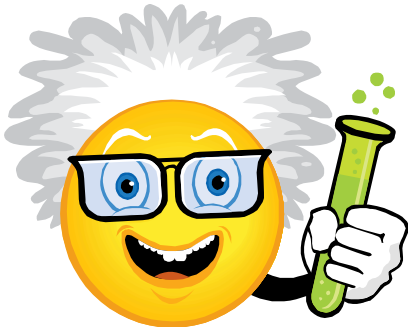
Course Code	Course Title	Unit
ENER3010	**Renewable Energy Technologies**	**3**
ENER3020	**Energy Utilization and Human Behaviour**	**3**
ENGG1500	**Introduction to Energy and Environment**	**3**
GRMD3102	Research Design and Methodology	3
GRMD3202	Environmental Management	3
GRMD3203	Urban Environmental Problems	3
GRMD3205	Geomorphology	3
GRMD3209	Soil Science	3
GRMD3323	Urban and Regional Planning	3
GRMD3403	Methods for Resource Evaluation & Planning	3
GRMD3404	Natural Hazards & Human Responses	3
GRMD4202	Hydrology and Water Resources	3
GRMD4203	Landscape Ecology	3
GRMD4401	Energy Resources	3
LAWS4310	**The Environment and the Law**	**3**
PHPC2009	Environment and Work	3
PHPC2015	Biostatistics	3
PHPC2017	Epidemiology	3
PHPC2018	Infectious Diseases of Public Health Importance	3
PHPC3016	Environment and Health	3
PHPC3017	Work and Health	3
SEEM2540	**Energy Economics and Management**	**3**
URSP2100	Urban Sustainability	3
URSP3300	Sustainable Urban Transport	3
URSP4100	Urban Planning Theory & Practice	3

Suggested Concentrations

Concentration 1: Environmental Management



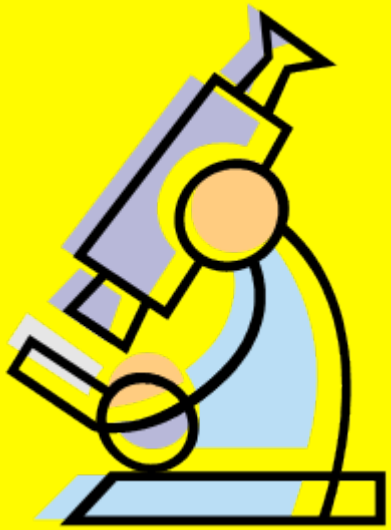
Concentration 2: Environmental Technology



Concentration 1: Environmental management.

In addition to the core courses, students should take 8 courses from the followings:

- Principles of Environmental Protection and Pollution Control
- Conservation Biology
- Environmental Impact Assessments/Lab
- Environmental Health
- Biodiversity Lab I
- Biodiversity Lab II
- General Microbiology
- Plant Biology
- Invertebrate Form and Function
- Vertebrate Life
- Marine Biology
- Hong Kong Flora and Vegetation
- Environmental Pollution and Toxicology
- Field and Environmental Biology (Lab course)
- Hydrology & Water Resources
- Ecotourism
- Energy Economics and Management
- The Environment and the Law

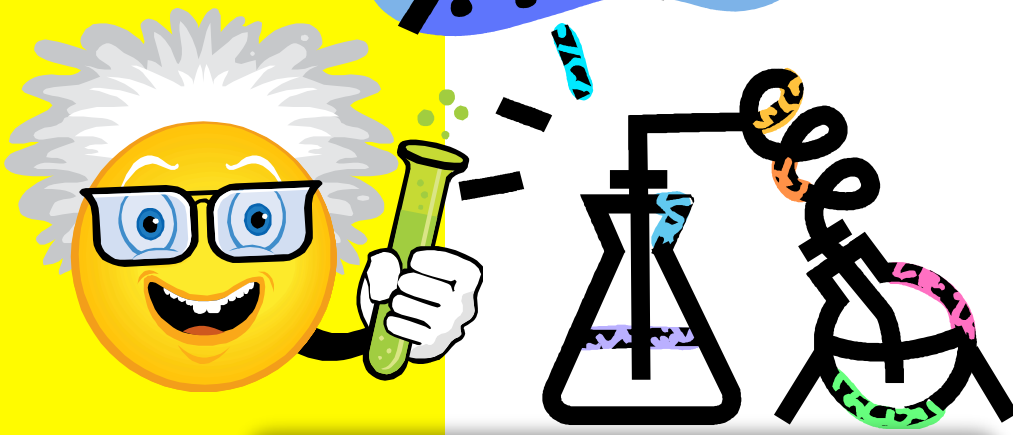


All students are also encouraged to take minor in Geography and Resource Management, Urban Study, or Public Health

Concentration 2: Environmental Technology

In addition to the core courses, students should take 8 courses from the followings:

- Environmental Biotechnology
- Advanced Environmental Chemistry
- Chemical Treatment Processes
- Advanced Analytical Chemistry
- Practices in testing Laboratory
- Chemical Applications in Forensic Sciences
- Protein & Enzyme
- General Microbiology
- Recombinant DNA
- Environmental Pollution and Toxicology
- Field and Environmental Biology (Lab course)
- Urban Environmental Problems
- Environmental Monitoring
- Hydrology & Water Resources
- Environment and Work
- Renewable Energy Technologies
- Energy Utilization and Human Behaviour
- Introduction to Energy and Environment



All students are also encouraged to take minor in Biochemistry, Biology, Chemistry, Molecular Biotechnology, etc.

Exchange Program

We have had over 20 students went to the following universities.

Australia: ANU, NSW
Canada: UBC, U of T, Waterloo
Denmark: Copenhagen
Finland: Helsinki
Germany: Hannover
Japan: Christian U, Kyoto Sangyo
Mainland: Peking
Norway: Bergen
Sweden: Royal Ins. Of Technology
Switzerland: Lausanne
USA: Penn State, Ohio State, Claremont McKenna

Career Talk

Field Trip and Field Study

Field Excursion (2012) at Mount Kinabalu (4095.2 M)

Snorkeling Training

Sha Lo Tung Field Study in EIA Lab

Tai O Field Trip (ENSC2270)

Field Trip in Sabah studying pitcher plants and wetland mammals there (ENSC3001)

5. Staff List/Useful Contacts

Name	Tel. No.	Room No.	Email
Prof. P O Ang	3943 6133	MSL	put-ang@cuhk.edu.hk
Prof. K M Chan	3943 4420	SC 184	kingchan@cuhk.edu.hk
Prof. L M Chu	3943 6378	SC E407	leemanchu@cuhk.edu.hk
Prof. John W S Ho	3943 6114	MMW 604	ws203ho@cuhk.edu.hk
Prof. S L Lam	3943 8126	SC G58	lams@cuhk.edu.hk
Prof. H K Lee	3943 6331	SC 261	hklee@cuhk.edu.hk
Prof. Susanna S T Lee	3943 6333	SC 181	lee2022@cuhk.edu.hk
Prof. Kevin W P Leung	3943 6377	SC 260	kevinleung@cuhk.edu.hk
Prof. C K Wong	3943 6771	MSL	chongkimwong@cuhk.edu.hk
Prof. P K Wong	3943 6383	SC E411	pkwong@cuhk.edu.hk
Prof. Jimmy C M Yu	3943 6268	SC 162	jimyu@cuhk.edu.hk

General Office: SC132, Science Centre, North Block

Contact person : Mr. Patrick Tang
Tel : 3943 6294
Fax : 2603 5646
Email : ens@cuhk.edu.hk
Homepage : http://www.cuhk.edu.hk/ens/

MSL: LFS Marine Lab
SC: Science Center
MMW: Mong Man Wai Bldg

College Coordinators

➢ Chung Chi College	Prof. K N Leung	3943 8137/MMW507
➢ New Asia College	Prof. Susanna S T Lee	3943 6333/SC 181
➢ Shaw College	Prof. C K Wong	3943 6771/MSL
➢ United College	Prof. H K Lee	3943 6331/SC 261

Please click into our website for more information and refer to the website of Academic and Quality Section for Undergraduate Student Handbook 2013-14, details of course arrangement and university regulations, etc.