Discovery-enriched Curriculum & Academic Honesty & Co-curricular Activities

College of Science and Engineering
29 August 2017

By Professor Michael Lam
Assistant Dean of CSE
Discovery-enriched Curriculum (DEC)
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- Discovery, Innovation, Creativity
- Comprehensive educational experience
- Intellectual curiosity and lifelong learning

Aim HIGH! Think BIG! Try HARD!
Pursue a Second Major / a Minor

Interdisciplinary studies expose students to varied disciplines, and to increase the value and breadth of their undergraduate education.

Check the full list of majors/minors and their curriculum requirements at ARRO’s website http://www.cityu.edu.hk/ug/201718/catalogue/catalogue_UC.htm?page=B/Introduction.htm
# Examples of Major & Minor Pairings

<table>
<thead>
<tr>
<th>Major</th>
<th>Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Biology</td>
<td>Psychology</td>
</tr>
<tr>
<td>Applied Chemistry</td>
<td>Linguistics</td>
</tr>
<tr>
<td>Computing Mathematics</td>
<td>Quantitative Finance</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Global Business</td>
</tr>
<tr>
<td>Information Engineering</td>
<td>Korean Studies</td>
</tr>
<tr>
<td>Surveying</td>
<td>Business Law</td>
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</tbody>
</table>
Academic Honesty
Academic Dishonesty

Academic dishonesty is a serious offence. It can lead to disciplinary action with a penalty including expulsion from the University and debarment from re-admission.
Examples of Academic Dishonesty

- **Plagiarism** e.g. failure to properly acknowledge the use of another person’s work; submission of work that is not the student’s own work

- **Misrepresentation** e.g. submit a piece of group work as the student’s own individual work
Examples of Academic Dishonesty

- **Collusion** i.e. let another person copy one’s work
- Use of **unauthorized material**
- Use of **fabricated data**
- Use of **data copied or obtained by unfair means**
- **Impersonating another student at a test / exam**
University Requirement

All CityU students are required to:
(1) complete an online tutorial
(2) take an online quiz
(3) fill out an online declaration

Attend relevant library workshops!

Deadline: 30 Nov 2017
Co-operative Education Centre

- Student Exchange Programme
- Internship Schemes
- Cultural and Language Immersion Scheme
- Joint Bachelor's Degree Program between CityU and Columbia University
Exchange / Internship
Enhancing Your University Life
Student Exchange Programme

a unique educational experience
Outgoing Students Distribution 2016/17

- 310 students have gone abroad under Student Exchange Programme

- Europe: 40%
- Mainland: 15%
- North America: 11%
- Asia: 28%
- Australia: 6%
CityU has over 320 exchange partners with over 1,000 exchange places for students
Internship Schemes

- Short term (Summer) or full final year
- Apply classroom learning to real life
- Gain solid working experience
- Establish network before graduation
- Prepare for the job hunt / research studies
Internship Schemes

- Summer of Year 3
  - Industrial Attachment Scheme
  - Overseas Internship Scheme

- Final Year
  - Cooperative Education Scheme
Partner companies/ institutions

Strong linkage with over 400 companies & overseas institutions
Cultural and Language Immersion Scheme (CALIS)

- 4-week summer programme
- Experience the culture of England
- Improve English proficiency
- Attain a high IELTS score
- Welcome Year 1 students!
Cultural and Language Immersion Scheme (CALIS)

- Homestay
- Cultural & sports activities
- Industrial visits & excursions
- Community service
- English classes in local universities
City University of Hong Kong | Columbia University
Joint Bachelor’s Degree Program

https://gs.columbia.edu/cityu-hk/
Program Overview

- Students will study in the same major throughout.
- Upon the completion of all academic requirements prescribed by both CityU and Columbia University, students graduate with two bachelor’s degrees: one from CityU and one from Columbia University.
Where are Program Alumni now?

- Working at Google in California as a Software Engineer after completing a master’s degree in Computer Science at Columbia University
- Studying a PhD in Biostatistics at the University of Texas
- Working at DIYI Intelligence, a start-up in Shanghai providing O2O service to college students
- Working at Morgan Stanley New York as a Trading Analyst
- Working at JP Morgan New York as a Trading Analyst
- Working at Memorial Sloan Kettering Cancer Center, New York as a research technician
...In terms of personal growth, I think coming to Columbia -- especially the School of General Studies -- has no doubt expanded my comfort zone... I became more mature in interacting with people and more willing to explore the areas that I'm not familiar with...

...my success at getting admitted into Columbia is largely due to the enormous resources that CityU offers. There are many learning resources as well as academic advising, extra-curriculum opportunities available to students like me...
The Four ‘I’s

- Internationalization
- Interdisciplinary
- Professional Education
- Interpersonal Skills
- Innovation
Plan now for your fruitful university life!
Grand Challenges Scholars Program (GCSP)
College of Science and Engineering
Overview of GCSP (NAE)

- In 2008, the US National Academy of Engineering (NAE) identified 14 Grand Challenges for Engineering in 21st century.

- Grand challenges are a call to action and serve as a focal point for society’s attention to opportunities and challenges affecting our quality of life.

- To prepare students to solve the grand challenges, NAE initiated the Grand Challenge Scholars Program (GCSP). It is a combined curricular and extra-curricular program with five components.
14 Grand Challenges

**Sustainability**
1. Make solar energy economical
2. Provide energy from fusion
3. Develop carbon sequestration methods
4. Manage the nitrogen cycle
5. Provide access to clean water
6. Advance health informatics
7. Engineer better medicines

**Health**
8. Prevent nuclear terror
9. Secure cyberspace
10. Restore and improve urban infrastructure

**Security**
11. Reverse engineer the brain
12. Enhance virtual reality
13. Advance personalized learning
14. Engineer the tools of scientific discovery

**Joy of Living**
5 Curricular Components

<table>
<thead>
<tr>
<th>Research Experience</th>
<th>• Conduct research on a topic related to one of the Grand Challenges</th>
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</thead>
<tbody>
<tr>
<td>Interdisciplinary Curriculum</td>
<td>• Enroll on courses in other fields, (e.g. business, ethics, arts, human behavior, etc.)</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>• Develop market ventures that scale to global solutions in the public interest</td>
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</tbody>
</table>
| Global Dimension | • Develop students’ global perspective  
• Lead innovation in a global economy |
| Service Learning | • Develop and deepen students’ social consciousness  
• Bring technical expertise to bear on societal problems |
The GCSP at CityU
(1) Interdisciplinary Curriculum

Requirement (Complete at least 4 GE courses from an approved list)

1. *GE2304 Foundations of Innovation and Entrepreneurship* (Compulsory course); and

2. Three other GE courses (i.e. minimum one course each from Areas 1 and 2).

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
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<tbody>
<tr>
<td>Area 1</td>
<td>Arts and Humanities</td>
</tr>
<tr>
<td>Area 2</td>
<td>Study of Societies, Social and Business Organizations</td>
</tr>
<tr>
<td>Area 3</td>
<td>Science and Technology</td>
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Examples:

<table>
<thead>
<tr>
<th>Recommended Course(s)*</th>
<th>Public policy</th>
<th>Business issues</th>
<th>Ethical &amp; Sustainability issues</th>
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</thead>
<tbody>
<tr>
<td>GE2233 Public Policy in Action</td>
<td>GE2202 Globalization and Business</td>
<td>GE2204 Business ethics and society</td>
<td></td>
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<tr>
<td>GE2235 Global Media, Global Crises</td>
<td>GE1218 Make a Difference: The Challenge of Social Entrepreneurship in a Globalized World</td>
<td>GE1119 Ethics for Professionals</td>
<td></td>
</tr>
<tr>
<td>GE2236 Understanding Energy-Environmental Policies</td>
<td>GE2250 Social Innovation and Entrepreneurial Venture Exploration</td>
<td>GE2220 Sustainable Business: Doing Good Business While Doing Good</td>
<td></td>
</tr>
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*A list of other courses will be considered by the Steering Committee on a case-by-case basis*
(2) Global Dimension

<table>
<thead>
<tr>
<th>Requirement (Complete ONE of the following activities)</th>
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<tbody>
<tr>
<td>• Overseas Student Exchange Program</td>
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<tr>
<td>• Overseas Internship Scheme (OIS)</td>
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<tr>
<td>• Cultural and Language Immersion Scheme (CALIS)</td>
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<tr>
<td>• Overseas Study Tours</td>
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<tr>
<td>• Overseas Summer School</td>
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<td>• Overseas Competition</td>
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And, submit a **reflective essay** to articulate the linkage between the global experience and the Grand Challenge.
Cross Cultural Dimension

Exchange program

- e.g. “Low Carbon Green Energy” Summer School 2015, jointly organized by CSE, Tsinghua University (Beijing) and National Tsing Hua University (Hsinchu)
- e.g. EE Department Summer Exchange (2015) at Chang Gung University and National Cheng Kung University (NCKU) in Taiwan

Internship overseas

- e.g. The Overseas Internship Scheme (OIS): a summer internship program organized by the Co-op Centre of CSE

Research overseas

- e.g. CS Department: Research Internship in the Shenzhen Institute of Advanced Technology (SIAT), China & Summer Experience and Research Attachment in USA 2015
(3) Service Learning

Requirement (Complete ONE of the following activities)

(1) City-Youth Empowerment Project (CYEP)
(2) Servant Leadership Training Program (SLTP)
   - Minimum of 30 hours of services
   - Submit a report to reflect on the overall experience

(3) Other service learning activities related to the 14 Grand Challenges
   - Prior approval needs to be sought from the steering committee
   - University-wide activities organized by SDS:
     - CityU Student Ambassador Programme
     - Elite 100 Programme
## Requirement (Complete EACH of the following)

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>1.</td>
<td>Complete the GE course GE2304 Innovation and Entrepreneurship for Young Professionals (Area 3)</td>
</tr>
<tr>
<td>2.</td>
<td>Participate in at least one business plan / pitching competition</td>
</tr>
<tr>
<td></td>
<td>- Submit a reflective essay after completion of the experience</td>
</tr>
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Examples of Entrepreneurship

Start up with Associations

- e.g. Hong Kong Federation of Youth Groups, Qianhai Shenzhen-Hong Kong Youth Innovation and Entrepreneur Hub

Develop case study

- Participate in contents/awards (CSE or “Innovation Commons”)  
  - e.g. Samsung Solve for Tomorrow Competition (2014) – First Prize  
    “Humanised Variable-Air-Volume Air Conditioning System”, Jacky LAI Chun-tak (EE)

- Participate in Student Early Entrepreneurship Development Scheme (SEEDS) & Technology Start-up Support Scheme for Universities (TSSSU)
## (5) Research Experience

<table>
<thead>
<tr>
<th>Requirements (Complete EACH of the following)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perform a two-semester long <strong>Final Year Project (FYP)</strong></td>
</tr>
<tr>
<td>2. Present the FYP in the College’s Annual Student Project Exhibition</td>
</tr>
<tr>
<td>3. Conduct a two-month <strong>summer research project</strong> <em>(minimum of 120 hours)</em></td>
</tr>
</tbody>
</table>
Summer Research work

- Initiated and conducted by students
- Individual or group research project
- Collaboration between CSE and non-CSE students is STRONGLY encouraged
- Allowance will be provided to students

(Subject to the decision of the steering committee)
Examples of Overseas GCSP Projects from 2012 onwards

<table>
<thead>
<tr>
<th>Grand Challenge:</th>
<th>Project Title:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restore and Improve Urban Infrastructure</td>
<td>Affording Sustainability ? Developing Affordable, Sustainable Housing</td>
</tr>
<tr>
<td>Provide Access to Clean Water</td>
<td>Improving Water Distribution in Developing Countries</td>
</tr>
<tr>
<td>Reverse-Engineering the Brain</td>
<td>Restoration of Somatosensory Sensation through Brain-Machine Interfaces</td>
</tr>
<tr>
<td>Engineer the Tools of Scientific Discovery</td>
<td>Wireless Communication: Advancing the World Through Connections</td>
</tr>
</tbody>
</table>
GCSP students 2016-17

<table>
<thead>
<tr>
<th>Dept</th>
<th>Grand Challenge(s)</th>
<th>Research topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ACE - Restore and Improve Urban Infrastructure - Provide Access to Clean Water</td>
<td>Proof of Concept of 4D Printed Carbon Fiber Pipes with Spiral Flow Pattern and Adaptable Flow rate or Capacity Capability</td>
</tr>
<tr>
<td>2</td>
<td>ACE Restore and Improve Urban Infrastructure</td>
<td>A Study of Wake Aerodynamics of Vertical Axis Wind Turbine through Wind Tunnel Tests</td>
</tr>
<tr>
<td>3</td>
<td>ACE Restore and Improve Urban Infrastructure</td>
<td>Optimization design of vertical axis wind turbine through computational fluid dynamics (CFD) analysis</td>
</tr>
<tr>
<td>4</td>
<td>MSE Make Solar Energy Economical</td>
<td>Development of inorganic perovkite solar cells with superb stability without lead</td>
</tr>
<tr>
<td>5</td>
<td>CHEM Engineerings the Tools for Scientific Discovery</td>
<td>Develop of biosensors for monitoring autophagy</td>
</tr>
<tr>
<td>6</td>
<td>CS Secure Cyberspace</td>
<td>Finding the influential spreaders in social network</td>
</tr>
<tr>
<td>7</td>
<td>CS Secure Cyberspace</td>
<td>Rumor Centrality</td>
</tr>
<tr>
<td>8</td>
<td>EE Advance personalized learning</td>
<td>Touch to Read – a reading device for the blind</td>
</tr>
<tr>
<td>9</td>
<td>SEEM Make Solar Energy Economical</td>
<td>Boosting economic growth in Africa with solar energy system</td>
</tr>
</tbody>
</table>
2017 Global Grand Challenges Summit
CityU representatives at the Poster Session

Department:
Mechanical and Biomedical Engineering (MBE)

Project title:
Micro Scent Generation on Demand for Immersive Smell and Emotion in Virtual Reality Systems

Student: Muhammad Shahzain Riaz, LAW Junhui, James Utama Surjadi

Supervisor: Prof. Wen Jung LI, Dr. CHAN Ho Yin
Featured Projects

1. A Smart Drunk Driving Detection Scheme
   智能醉酒駕駛檢測方案

2. Bio-Inspired 3D Printing of Lattice Metamaterials
   仿生三維打印微格超材料

3. Learning Algebra Through Play
   代數遊戲

4. Waste Heat Recovery
   廢能回收
Other Projects

**Project title:**
A Smart Drunk Driving Detection Scheme  
**Department:** Architecture and Civil Engineering (ACE)  
**Student:** CHEUNG Chiu-wing  
**Supervisor:** Dr. LUO Xiaowei

**Project title:**
Touch-free Biomedical Image Navigation System for Surgeons  
**Department:** Mechanical and Biomedical Engineering (MBE)  
**Student:** LO Karen, LEUNG Yin and WONG Chun-yin  
**Supervisor:** Dr. TIN Chung
Who can apply?

All CSE students with CGPA 2.70 or above
Preferably Year 1 and Year 2 students

How to apply?

Stage One Application
(Conditional Offer)
• An application form
• A preliminary research proposal and a curricular plan
• A Statement of commitment
• Recommendation(s) by faculty mentor(s).

Stage Two Application
(Offer)
• A detailed research proposal and curricular plan
• A budget plan for summer research project, if applicable

For more details, visit CSE website:
Recognition

- Participants will receive a Gold/Silver/Bronze certificate or certificate of completion, depends on performance.

- Students with Gold or Silver certificates will be under consideration for recommendation to NAE.
THE END