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

College of Science and Engineering
By Professor Robert Li
24 August 2016
Associate Dean of CSE
Discovery-enriched Curriculum (DEC)
Discovery-enriched Curriculum (DEC)

- 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.

### 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>
</tr>
</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 2016
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 2015/16

- 350 students have gone abroad under Student Exchange Programme
### Partner Institutions

**Canada**
- Acadia University
- Dalhousie University
- Polytechnique Montreal
- Queen’s University
- University of Toronto
- University of Alberta
- University of British Columbia

**Finland**
- Aalto University
- Tampere University of Technology

**Germany**
- Nuremberg Institute of Technology George-Simon-Ohm
- Ludwig-Maximilians-Universitat Munchen
- Leibniz Universität Hannover
- University of Mannheim

**Germany (continued)**
- Nuremberg Institute of Technology George-Simon-Ohm
- Ludwig-Maximilians-Universitat Munchen
- Leibniz Universität Hannover
- University of Mannheim

**Denmark**
- Technical University of Denmark

**Netherlands**
- University of Twente

**United States**
- University of Illinois at Urbana-Champaign
- University of Maryland, College Park
- Vanderbilt University

**France**
- Ecole Polytechnique
- Grenoble Institute of Technology
- INSA Toulouse
- Polytech Nice-Sophia
- Polytech Tours
- Université Montpellier 2

**Mainland China**
- Nanjing University
- Nankai University
- Beijing University of Posts and Telecommunications

**Mainland China (continued)**
- Nanjing University
- Nankai University
- Beijing University of Posts and Telecommunications

**South Korea**
- Yonsei University
- Konkuk University

**UK**
- University College London
- University of Kent
- University of Warwick
- University of Bath

**Japan**
- Kyushu University
- Kyoto University
- Osaka University

**Australia**
- Griffith University
- University of Wollongong

**Brazil**
- University Adolfo Ibanez

**Japan (continued)**
- Kyoto University
- Osaka University

**Mainland China (continued)**
- Nanjing University
- Nankai University
- Beijing University of Posts and Telecommunications

**Mainland China (continued)**
- Nanjing University
- Nankai University
- Beijing University of Posts and Telecommunications

**Australia (continued)**
- Griffith University
- University of Wollongong

**Turkey**
- Sabanci University

**Macau**
- University of Macau

**Taiwan**
- National Central University
- National Taiwan University of Science and Technology (Taiwan Tech)
- University System of Taiwan

**Chile**
- University Adolfo Ibanez

---

**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
Students will study in the same major throughout their four years of studies.

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
- Interpersonal Skills
- Professional Education
- Interdisciplinary
- Innovation
Plan now for your fruitful university life!
Overview of GCSP (NAE)

- The National Academy of Engineering Grand Challenge Scholars Program is a combined curricular and extra-curricular program with five components that are designed to prepare students to be the generation that solves the grand challenges facing society in this century.

- In 2008, the NAE identified 14 Grand Challenges for Engineering in the 21st Century. The 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.
Objectives

- To prepare students to be the generation that solves the grand challenges facing society in this century
- Serve as a focal point for society's attention to opportunities and challenges affecting our quality of life
- Serve to pilot innovative educational approaches that will eventually become the mainstream educational paradigm for all engineering students
1. Advance **Personalized Learning**
2. Make **Solar Energy** Economical
3. Enhance **Virtual Reality**
4. **Reverse-Engineer the Brain**
5. **Engineer Better Medicines**
6. Advance **Health Informatics**
7. Restore and Improve **Urban Infrastructure**
8. **Secure Cyberspace**
9. Provide Access to **Clean Water**
10. Provide **Energy** from Fusion
11. Prevent **Nuclear Terror**
12. Manage the **Nitrogen Cycle**
13. Develop **Carbon Sequestration Methods**
14. Engineers the Tools for **Scientific Discovery**
## 5 Program Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hands-on Project/Research Experience</strong></td>
<td>- Related to a Grand Challenge</td>
</tr>
<tr>
<td><strong>Interdisciplinary Curriculum</strong></td>
<td>- A curriculum that complements engineering fundamentals with courses in other fields, (e.g. public policy, business, law, ethics, human behavior, risk, and the arts)</td>
</tr>
<tr>
<td><strong>Entrepreneurship</strong></td>
<td>- Preparing students to develop market ventures that scale to global solutions in the public interest</td>
</tr>
<tr>
<td><strong>Global Dimension</strong></td>
<td>- Developing the students’ global perspective necessary to address challenges that are inherently global as well as to lead innovation in a global economy</td>
</tr>
<tr>
<td><strong>Service Learning</strong></td>
<td>- Developing and deepening students’ social consciousness and their motivation to bring their technical expertise to bear on societal problems through mentored experiential learning with real clients</td>
</tr>
</tbody>
</table>
Curricular Components
(1) Interdisciplinary Curriculum

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

1. GE2304 Innovation and Entrepreneurship for Young Professionals (Area 3) is a compulsory course to fulfill the entrepreneurship component; and

2. Three other GE courses need to demonstrate the interdisciplinary component (i.e. minimum one course each from Areas 1 and 2).

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<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>
</tr>
</tbody>
</table>
• Complete 3 GE courses to prepare Engineering/Science students to work across boundary
• Courses listed below are examples only
• A list of other courses will be considered by the Program Committee on a case-by-case basis

<table>
<thead>
<tr>
<th>Recommended Course(s)</th>
<th>Public policy</th>
<th>Business issues</th>
<th>Ethical &amp; Sustainability issues</th>
</tr>
</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>
</tr>
<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>
</tbody>
</table>
(2) Global Dimension

<table>
<thead>
<tr>
<th>Requirement (Complete ONE of the following activities)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Overseas Student Exchange Program</td>
</tr>
<tr>
<td>• Overseas Internship Scheme (OIS)</td>
</tr>
<tr>
<td>• Cultural and Language Immersion Scheme (CALIS)</td>
</tr>
<tr>
<td>• Overseas Study Tours</td>
</tr>
<tr>
<td>• Overseas Summer School</td>
</tr>
<tr>
<td>• Overseas Competition</td>
</tr>
</tbody>
</table>

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
### Requirement (Completing ONE of the following activities)

1. **City-Youth Empowerment Project (CYEP)**
   - Minimum of 30 hours of services
   - Submit a report to the faculty mentor to reflect on the overall experience

2. **Servant Leadership Training Program (SLTP)**
   - Meet the requirements laid down by the SLTP
   - Obtain endorsement on the completion of the program

3. **Other service learning activities related to the 14 Grand Challenges**
   - Prior approval needs to be sought from the steering committee
   - Minimum of 30 hours of services
   - Submit a report to the faculty mentor to reflect on the overall experience
Leadership activities
• e.g. University-wide activities organized by SDS:
  ➢ CityU Student Ambassador Programme
  ➢ Elite 100 Programme

Significant and sustained volunteer activity
➢ e.g. Green Connections works with the City-Youth Empowerment Project (CYEP) on local and international volunteering/service learning work for all CityU students
(4) Entrepreneurship

<table>
<thead>
<tr>
<th>Requirement (Complete EACH of the following)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Complete the GE course GE2304 Innovation and Entrepreneurship for Young Professionals (Area 3)</td>
</tr>
<tr>
<td>2. Participate in at least one business plan / pitching competition and submit a reflective essay after completion of the experience</td>
</tr>
</tbody>
</table>
Entrepreneurship

Start up with Associations

- e.g. Hong Kong Federation of Youth Groups, Qianhai Shenzhen-Hong Kong Youth Innovation and Entrepreneur Hub
- More information on the website of “Innovation Commons” at CityU

Develop case study

- Participate in contents/awards (CSE or “Innovation Commons”)
  - e.g. First Prize in Samsung Solve for Tomorrow Competition (2014)
    Jacky LAI Chun-tak (EE) developed a "Humanised Variable-Air-Volume Air Conditioning System“ which can automatically control the supply of fresh air
- Participate in Student Early Entrepreneurship Development Scheme (SEEDS) & Technology Start-up Support Scheme for Universities (TSSSU) launched by CityU Knowledge Transfer Office on 23 Nov 2015
<table>
<thead>
<tr>
<th>Requirements (Complete EACH of the following)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perform a two-semester long <em>Final Year Project (FYP)</em> with a topic related to at least one of the 14 Grand Challenges</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 <em>summer research project</em> (minimum of 120 hours) with the theme related to one of the 14 Grand Challenges</td>
</tr>
</tbody>
</table>

*Students who already have other equivalent research exposure could apply for exemption from the summer research project.*
Summer Research work

- Students initiate and conduct a 2-month summer research project
- Both Individual and group research project are welcome
- Co-operation between students from CSE and other majors is STRONGLY encouraged
- Allowance will be provided to students (Subject to the decision of the steering committee)
Student Projects (FYP) at CityU

• Featured Projects

1. Bamboo Mechanics
   竹子力學

2. Maze-Solving: Robotics and Mobile Game
   智解迷宮：機器人和手機遊戲

3. Solar Car
   太陽能車 - 赤輪

4. CityU Robotics
   水底機器人
Examples of the Student Projects
Department of Mechanical and Biomedical Engineering (MBE)

- Developing a Non-Destructive Testing Device for Inspecting Rusty Steel Pipes within Concrete Wall
- 以非破壞檢測技術評估石屎牆中喉管的銹蝕程度
- Student: Lai Hoi Yan
- Supervisor: Dr. Bing Lam Luk
Department of Physics and Materials Science (AP)

• Rapid Detection Method for Lead Ions In Drinking Water

• 飲用食水鉛離子含量快速檢測方法

• Student: Law Hui Lun, Anton

• Supervisor: Prof. Lawrence C M Wu
Department of Electronic Engineering (EE)

- Smart Charger
- 智能充電器
- Student: Lai Chun Tak
- Supervisor: Prof. Henry S H Chung
Notes to applicants

• All CSE students are welcomed to apply for GCSP.
• **First year students** are suggested to apply for GCSP in Semester B of their first year of study.
• Students can work **individually or in groups** for the Summer Research Projects.
  • Multi-disciplinary topics of the Summer Research projects are recommended.
  • For students who work in groups, members from different CSE departments and different years are recommended.
  • Students from different colleges are welcomed to join the Summer Research Projects.
• All scholars have to present their FYPs in the GCSP Student Project Presentation.
• Participants will receive a **Gold/Silver/Bronze certificate or certificate of completion** once they complete all five curricular components, depends on performance.
• Students with Gold or Silver certificates will be under consideration for recommendation to NAE.
## Application Requirement

**Stage One - Requirement for student applications:**

1. **A statement of Commitment (Not more than 1000 words)**
   - Identify the chosen Grand Challenge(s) and explain the vision.
   - Explain how your portfolio will address the issue.

2. **A brief research proposal (Not more than 1000 words)**
   - Describe the research proposal and explain how it aligns with the selected Grand Challenge(s).

3. **A copy of transcript demonstrating CGPA 2.7 or above.**

4. **At least one recommendation from a **CSE faculty mentor.**

*First year students can provide the transcript in Semester B, when the examination results are released.*

**Students could invite a faculty member to be his/her mentor from the GCSP website (not inclusive). Students may approach the College (Miss Bo Chong: bo.chong@cityu.edu.hk; 34429663) if they have difficulties finding a faculty mentor.*
Application Requirement

• **Stage One**: Applicants will receive a conditional offer once the application is accepted by the steering committee.

• **Stage Two**: After receiving the conditional offer, applicants have to submit a [detailed Research Proposal](#), a [Curricular Plan](#) and a [*Budget Plan (Optional)*](#) for the Summer Research Project to the steering committee within two months.

• **Offers** to enter GCSP and the Summer Research Project will be announced in [late April 2017](#).

• *Applicants who want to apply for the Summer Research Project are required to complete the Budget plan.*
# Study Schedule for GCSP Scholars

## First year of participation

### Application and Summer Research Project Timeline:

<table>
<thead>
<tr>
<th>Year 1 (2016-2017 cohort)</th>
<th>2016-2017</th>
<th>2017-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester A</td>
<td>Semester B</td>
<td>Summer</td>
</tr>
<tr>
<td>Stage one application</td>
<td>Deadline: January 2017</td>
<td>Summer Research Project starts in June 2018</td>
</tr>
<tr>
<td>Semester A</td>
<td>Semester B</td>
<td>Summer</td>
</tr>
<tr>
<td>Stage Two application</td>
<td>Deadline: November 2017</td>
<td>Summer Research Project starts in June 2018</td>
</tr>
</tbody>
</table>

### Year 2 (2015-2016 cohort) | 2016-2017 | 2017-2018 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester A</td>
<td>Semester B</td>
<td>Summer</td>
</tr>
<tr>
<td>Stage One application</td>
<td>Deadline: November 2016</td>
<td>Summer Research Project starts in June 2017</td>
</tr>
<tr>
<td>Semester A</td>
<td>Semester B</td>
<td>Summer</td>
</tr>
<tr>
<td>Stage Two application</td>
<td>Deadline: April 2017</td>
<td>Summer Research Project starts in June 2017</td>
</tr>
</tbody>
</table>