Internationalizing STEM Education through Sustainable International Partnerships.

FAUBAI Conference
15.4.14

Presenters:

Enda Carroll
Associate Director
UCD International

Dr. Tadhg O’Croinin
Associate Dean for Internationalization
College of Science

Sue Philpott
Director of Program Office
College of Engineering & Architecture
University College Dublin: Ireland’s Global University
University College Dublin - Profile

- Top 1% ranked university in the world
- Largest university in Ireland - 25,000 students
- Most diverse university in Ireland
- Located in Dublin, Ireland’s capital city
- Founded in 1854 – one of Ireland’s oldest universities
- Largest urban campus in Europe (133 hectares)
University College Dublin

Largest Urban Campus in Europe
University College Dublin - Internationalization

- **20%** of students at UCD are International
- **110** countries represented
- **Study Abroad and Exchange programmes:**
  - Study Abroad Agreements with 80 + US universities
  - Exchange agreements with many universities worldwide
  - Broad staff exchanges - focus on research
- **Joint Programmes:**
  - Erasmus Mundus programmes
- **Overseas Campuses (5,000+ students):**
  - China, Singapore, Malaysia, Hong Kong, Sri Lanka, Spain
UCD - Global Lounge

UCD Global Lounge for International students – First in Europe
Study Abroad Partnerships at UCD

• 80 + very active partnerships with Universities in USA developed over past 20 years
• UCD hosts 700 + one-way semester students annually on a fee-paying basis to a range of study abroad programmes
• Now beginning to engage with SE Asian study abroad
• Science without Borders -100 students currently, 100 more due to arrive at the university on the 2nd Call.
Study Abroad Program Development

• Important to be receptive to market demand:

- In the past - the majority of study abroad students attended Arts & Business programs
- More recently - demand for STEM study abroad programs is growing - more complex to keep students on track for their degree at home
- Programs must be flexible enough to give breadth to the cultural experience and tight enough to keep students on track.
Program Management & Delivery – Centralized / Decentralized Model

- Allows for both a central and local points of contacts for partners and students
- Central contact point ensures consistency in program delivery, Orientation, accommodation etc.
- Local contact point facilitates academic oversight and individual contact with the student
UCD STUDY ABROAD PROGRAM PROCESS OVERVIEW FOR STRATEGIC PARTNERS

1. Initial contact with/from Strategic Partners
   - UCD responds outlining the Study Abroad Program with specific reference to curriculum mapping

3. Partner identifies and works with suitable applicants
   - Partner Process
     - Look at UCD curriculum
     - Compare to Home Institution curriculum Dialogue
     - Agree broad set of UCD modules which can be taken in each semester (document this and maintain module updates annually)

4. Applicants apply online at www.ucd.ie/apply
   - Student Process
     - Student Selects Program
     - Create a user account
     - Apply
     - Upload supporting documents
     - Application reviewed by UCD

5. Offer accepted by student
   - Offer Made
     - YES - direct contact with student

6. UCD informs student and institution if applicant is unsuitable OR if additional information is required

7. UCD confirms the student's module selection with reference to agreed equivalences
   - UCD registers the student to modules and confirms registration

8. UCD advises:
   - Pre-arrival information, Orientation schedules, Accommodation options, Cultural program and Maintains academic and general support prior to student's arrival

9. Student arrives in UCD
   - UCD academic transcript sent to the Partner Institution for credit transfer when period of study is complete

Partner Process
- Student Selects Program
- Create a user account
- Apply
- Upload supporting documents
- Application reviewed by UCD
- Offer Made
- YES - direct contact with student
Choosing the right partners

**Strategic considerations:**
• Mission Fit with your University
• Complementary programmes, goals and mutual benefits
• Academic reputation of the institution
• Region or country of strategic significance
• On-site support for your students
• Logistical issues - distance, language, safety codes, accommodation
Pathways to Partnership development

• In the past, we researched and approached potential partners ..... now, more commonly prospective partners approach UCD.

• School (academic area) specific arrangement to University-wide

• UCD Faculty research contact developing into a study abroad partnership

• US Faculty-led summer program developing into a study abroad partnership
STEM in UCD

- The largest and most diverse Science and Engineering programs in Ireland.
- Vibrant Research Community across all disciplines.
- New Science centre opened in September 2014
- So how are we achieving the goal of internationalizing the STEM program at UCD?
UCD - Campus Development
Science District
Challenge 1 – Curriculum Mapping

• STEM students require course mapping to ensure that students are properly prepared for their return to the home university.
• Academics play a major role in course mapping and have to be assured that students will receive comparable training to the home university.
• Thus academics in UCD have to be able to provide course descriptors that will not only help a student identify a course but also help an academic advisor confirm a courses suitability.
• Initiate dialogue directly with Academics in home universities through Study Abroad offices.
Challenge 2 – Academic Student Support

• Students need not only to be pre-registered but also need to be able to change courses if required.
• Key is to have specific support staff within STEM for these students who interact with staff in home institute.
• Identify key academics who are interested in championing study abroad both in UCD and the host institute.
• Credit transfer – Ensure that Academics can analyze detailed syllabi to ensure accurate credit assessment.
• Being mindful of professional accreditation.
• Ensure you have a support system which monitors academic issues as well as pastoral issues.
Challenge 3 – Access to Research

• UCD students traditionally carry out a semester long research project in semester 1 of fourth year.
• Need to offer visiting students an opportunity to carry out research in UCD.
• The development of the “Introduction to...”
Running the Module

• Step 1 – Find out specific area of interest of student and level of experience.

• Step 2 – Identify research group of interest and get student and supervisor to meet.

• Step 3 – Design a project which allows students to learn techniques but most importantly answers a scientific question.

• Step 4 – Student carries out research project over the course of the semester carefully monitored by the Principal Investigator and the course coordinator.
Assessment of Module

• Continuous assessment.
• Learning Journal.
• Assignment on methods.
• Final assessment involves a public “scientific meeting”.
• Finally monitor feedback on module.
How do you achieve this?
No.1 – The student

• Ensure the student is placed in a research lab which suits their needs.
• What previous experience of research has the student got?
• What is the student’s long-term goal in carrying out the research project?
• Manage the expectation of the student.
No.2 - The Supervisor

• How do you incentivize already overworked academics?
• Consumables budget?
• “Buy in?”
• Make sure the student is enthusiastic about the research area.
• NEVER force a placement.
No.3 - The Home Institute

• Remember the student does not finish when they leave UCD.
• Send research posters back to home university.
• Communicate to make sure learning outcomes are achieved.
• Be open to dialogue and suggestions.
Remember it’s a work in progress

- Feedback from the student
  - Learning Journal and online module feedback forms
  - Direct communication
- Feedback from the academic
  - How could the module run better?
  - What would help the process
- Feedback from home institute
  - Study abroad office and academics.
UCD College of Engineering & Architecture
UCD College of Engineering & Architecture - Six Schools

- UCD School of Architecture
- UCD School of Biosystems Engineering
- UCD School of Chemical & Bioprocess Engineering
- UCD School of Civil, Structural & Environmental Engineering
- UCD School of Electrical, Electronic & Communications Engineering
- UCD School of Mechanical & Materials Engineering
UCD College of Engineering & Architecture – Programme Majors

Engineering
• Biomedical Engineering
• Biosystems Engineering
• Chemical and Bioprocess Engineering
• Civil Engineering
• Electrical & Electronic Engineering
• Electrical Energy Engineering
• Electronic & Computer Engineering
• Energy Systems Engineering
• Engineering with Business
• Materials Science and Engineering
• Mechanical Engineering

Architecture

Landscape Architecture
• Architectural Design
• Building Energy & Environmental Performance
• Conservation & Heritage
• Urban Design
• Irish & European Landscape & Urbanisation
• History & Theory of Architecture
UCD Engineering and Architecture
Study Abroad Programme -

• Well established Study Abroad Programmes
• Flexibility to mix and match modules across different disciplines and levels (subject to some constraints: prior learning, timetable; capacity)
• Choose six modules per semester
• Access to non-Programme modules - choose up to two Elective Modules, e.g. European Languages or Irish Culture modules per semester
UCD Engineering and Architecture Study Abroad Programme - Features

- Excellent UCD Student Support system
- Programme Office to assist with pre-registration, academic and pastoral supports; dedicated Study Abroad Officer
- Peer Mentors – All Study Abroad students are linked with a Peer Mentor who is a second or third year Irish student.
- Academic Mentors are assigned in each discipline for academic guidance – open door policy
- Focus Groups to monitor student experience and continuous programme improvement
Student Support and Cultural Engagement

Managed Centrally by UCD International Office:

- Extensive Orientation Program
- Value-added to create a cultural experience/cultural courses - Ireland Uncovered
- Full program of cultural activities
- Regular information sessions to address issues as a group e.g. Exams
Cultural Program as part of the Study Abroad Experience
Newgrange was constructed over 5,000 years ago (about 3,200 B.C.), making it older than Stonehenge in England and the Great Pyramid of Giza in Egypt.
Pastoral Care & Crisis Management

Pastoral Care – ongoing during semester
  • Open door policy for individual student appointments
  • International Student Advisor
  • Counsellors available

Issues where it is important to have contact with partners:

  • Student health issues – physical & mental
  • Disciplinary issues
  • Crisis Management plan – in case of major emergencies
Some key elements present in Sustainable Partnerships

• TRUST - developed over time
• Clear channel of communication between Study Abroad partners is critical for the benefit of the student
• Face to face relationship - SKYPE, meetings at Conferences, University visits
• Academic Champions at both partner Universities- sending and receiving
• Partners need to be in contact to assist students at risk
• Need to evaluate the partnership over time