

When is an engineer not an engineer?

Interdisciplinary inroads in the classical profession

Your host

- Maths, Physics, Music, Philosophy
Literature, Foreign Languages, Political
Economy.
- From Multidisciplinarity to Interdisciplinarity!
- Last 6 years: Arts and Sciences BASc, UCL.
- Action Research (aka 'doing it').
- Current interests: Psychology of Interdisciplinary
Education; Global trends in Liberal Arts and Sciences
HE.



The journey...

- Challenges: Culture, Politics, Scepticism, Rigour!
- Nods to the progressive educators: Classicists
 - and...Engineers
- Dave Goldberg, Olin College
- Now: Arts and Sciences BASc ~450 students, 120pa intake, outstanding range and quality of graduate outcomes



BASc is distinct from many ‘Liberal Arts’ programmes

- 1) Core modules to be taken by all BASc students
- 2) All students study a mix of Arts (Humanities) and Sciences throughout the degree

BASc Degree Structure

Core

50% of study time

Pathways

50% of study time

Timetable Structure for BASc

CORE						PATHWAY			
	0.5	0.5	0.5	0.5		0.5	05.	0.5	0.5
Final Year	Knowledge Economy	Dissertation	Dissertation	Lang.		Maj	Maj	Maj	Min
Work Placement									
Year Abroad (on 4-year Programme)									
Year 2	Object-based learning OR Qualitative Thinking OR Quantitative Methods II	Interdisciplinary Electives	Maj or Min option	Lang.		Maj	Maj	Maj	Min
Year 1	Approaches to Knowledge	Interdisciplinary Research Methods	Quantitative Methods: Modelling	Lang.		Maj	Maj	Maj	Min

The Pathways

Cultures	Societies	Health and Environment	Sciences and Engineering
Anthropology	Archaeology	Anthropology (Biological)	Chemistry
Art History	Geography	Biochemistry	Computer Science
Design	History	Biomedicine	Earth Sciences
English	International Relations	Ecology	Economics
Film	Law	Environmental Sciences	Engineering
History	Philosophy	Life Sciences	Mathematics
Languages	Political Economy	Pharmacology	Physics
Literatures	Politics	Psychology	Science and Technology Studies
Philosophy	Sociology	Science and Technology Studies	Statistics

Three new engineering modules for BAsc...

- [Engineering Thinking \(1st year module\)](#)
- [Engineering Design \(2nd year module\)](#)
- [Open Source Synthetic Biology \(2nd or 3rd year module\)](#)
- Supplemented by: Quantitative Methods, Maths Options, existing Physics Options, Engineering Options etc. Liberal approach!

Numbers of Students and Gender Balance

	2012-13	2013-14	2014-15	2015-16	Male : Female	Cumulative Total to Date
Engineering Thinking	10	6	10	14	12:28	40
Engineering Design		14	7	14	10:25	35
					22:53	75

Two recent Arts and Sciences BAsSc graduates:

- Who are you? What have you studied?
- What is your final dissertation about?
- What do you think an engineer is today?
- Would you, under any circumstances, call yourself an engineer?
- What are you going to do next and how might it relate to engineering?
- Would you like to be an 'accredited'/'chartered' engineer in some sense? If so, why? If not, why not?

Virginia Alonso Navarro, Lena Fuldauer



Dissertations

- Industrial Ecology in Malawi's Agro-industry Sector
- An interdisciplinary feasibility study of installing a dewatering system to treat effluent from small-scale urban anaerobic digestion plants: A case study of Camley Street Park.

Challenges...

- I think 'Engineering' needs these people!
- What does the profession do to attract and then 'include' them?
- The gender issues – [“Women seem to be drawn to engineering projects that attempt to achieve societal good.”](#) (Nilsson, NY Times, 2015)



When is an engineer not an engineer?

- When she's an artist?
- When she's a systems thinker?
- When she builds things?
- When she uses design tools to effect changes?

- Surely not?!
- Opportunity to rethink this most important of classical professions.