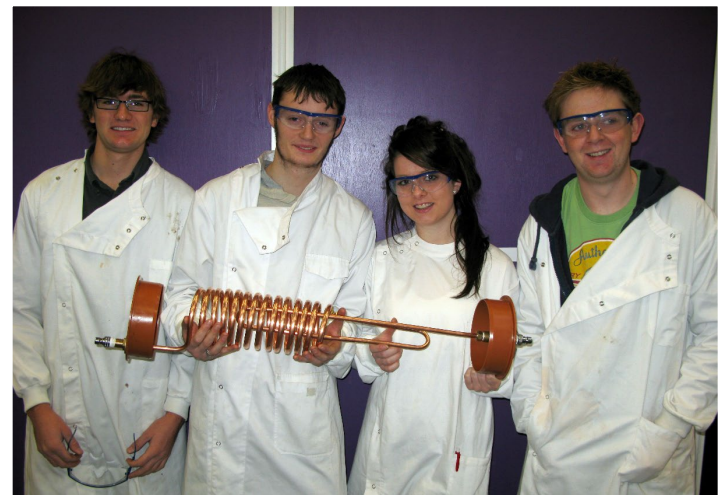
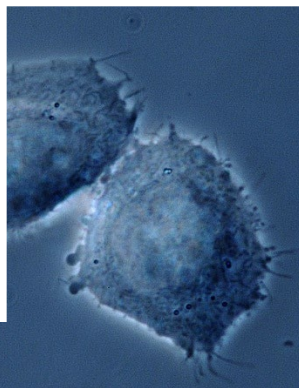
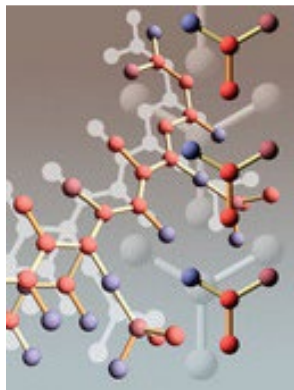


# Chemical & Bioprocess Engineering



...bringing science to life

# UCD Chemical & Bioprocess Engineering



**‘Make your mind up’ time.....**

**Dr. Georg Pesch**  
[georg.pesch@ucd.ie](mailto:georg.pesch@ucd.ie)

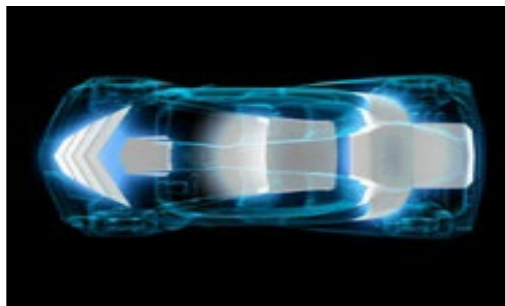
**Dr. Ioscani Jiménez del Val**  
[ioscani.jimenezdelval@ucd.ie](mailto:ioscani.jimenezdelval@ucd.ie)

# Where to... after Stage 1 Engineering...?



- **Chemical & Bioprocess Engineering**
- Engineering with Business
- Energy Systems Engineering
- Biomedical Engineering
- Mechanical Engineering
- Electronic & Electrical Engineering
- Biosystems Engineering
- Civil Engineering

# Is Chemical & Bioprocess Engineering for YOU?



[www.ucd.ie/eacollege/chembioeng/](http://www.ucd.ie/eacollege/chembioeng/)

# What skills do *all* Engineers need...?

Fundamental understanding of physical phenomena

Logical, analytical, numerical approach

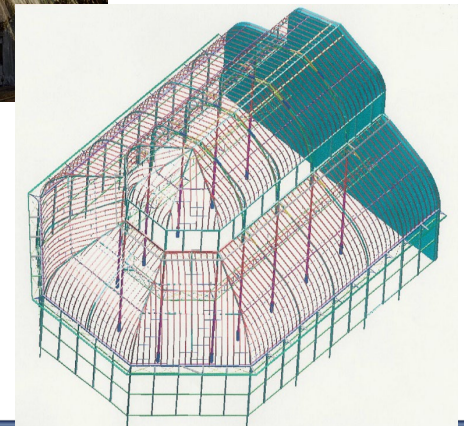
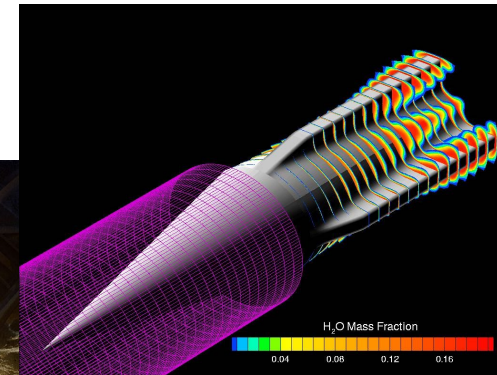
Communication skills

Creativity

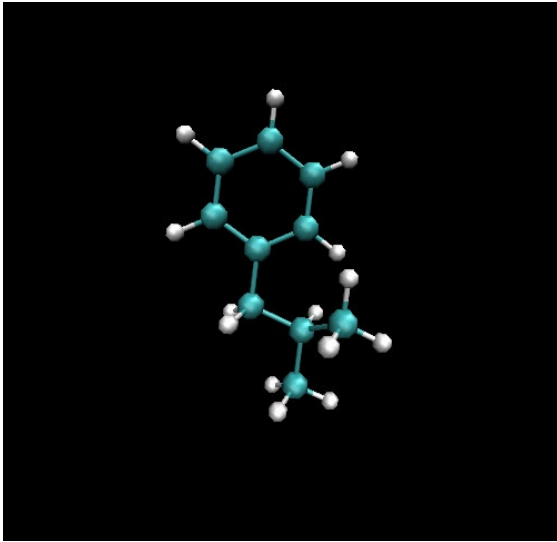
Teamwork

Ability to view problems in context

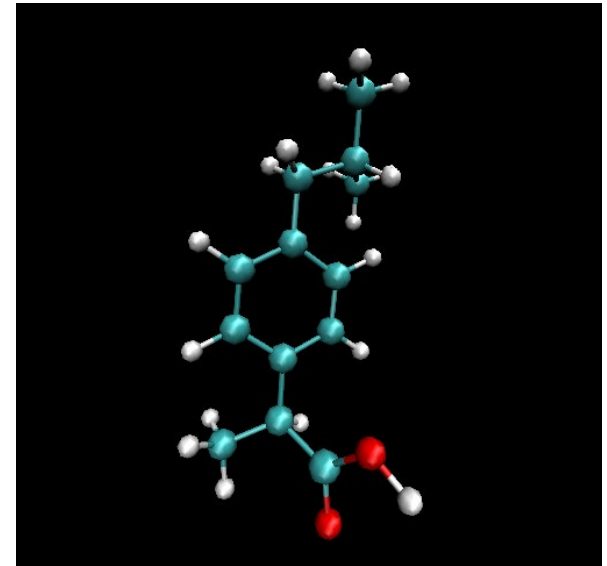
A capacity for life-long learning



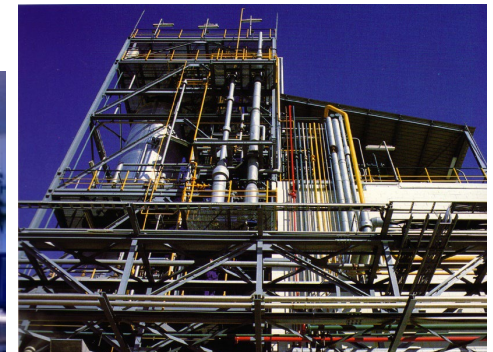
# Applying Chemical & Bioprocess Engineering skills?



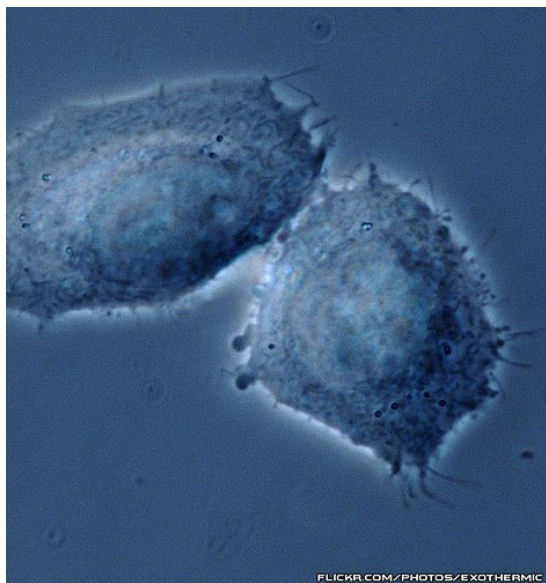
isobutylbenzene



ibuprofen



# Applying Chemical & Bioprocess Engineering skills?

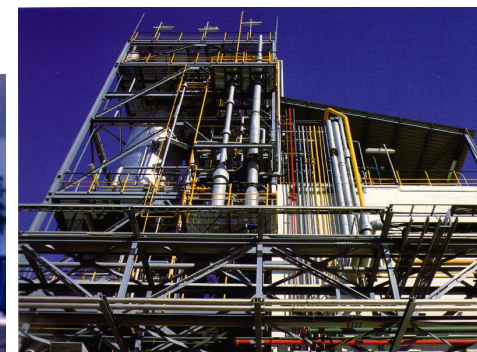


FLICKR.COM/PHOTOS/EXOTHERMIC

**Chinese Hamster  
Ovary (CHO) Cells**



**ENBREL®**



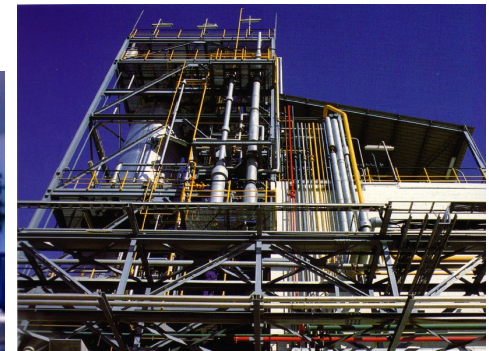
# Applying Chemical & Bioprocess Engineering skills?



**laboratory**

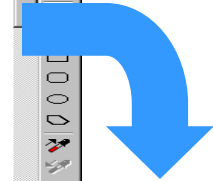
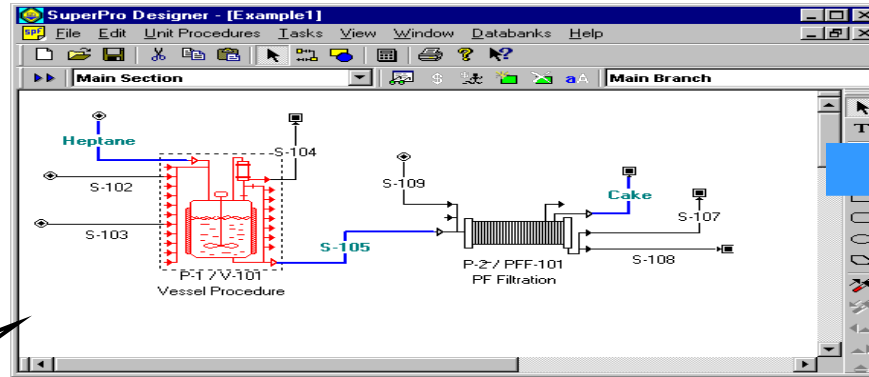
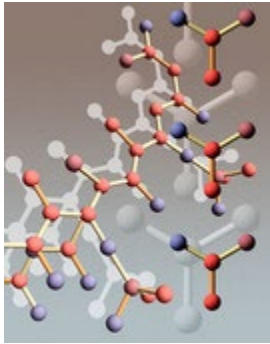


**production-scale**





# What do Chemical & Bioprocess Engineers do?



process development,  
scale-up & design

plant design,  
construction, operation,  
management



production

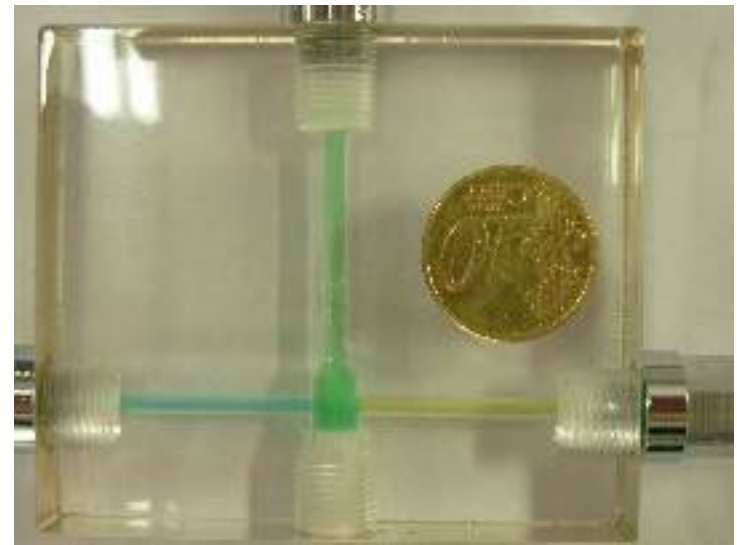


# Applying Chemical & Bioprocess Engineering skills?

## Making processes more efficient?



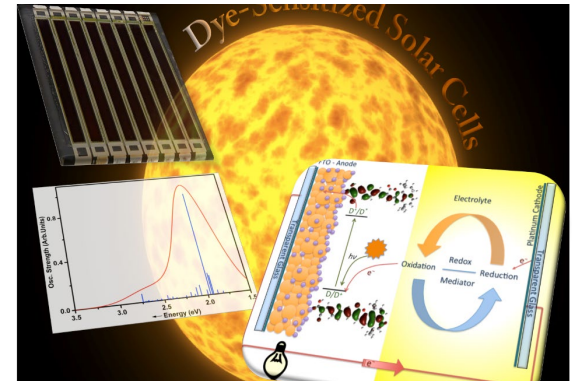
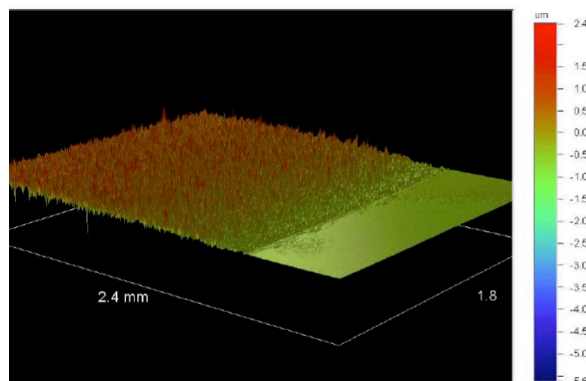
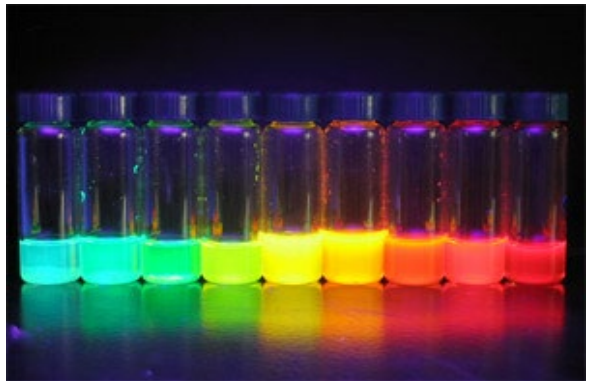
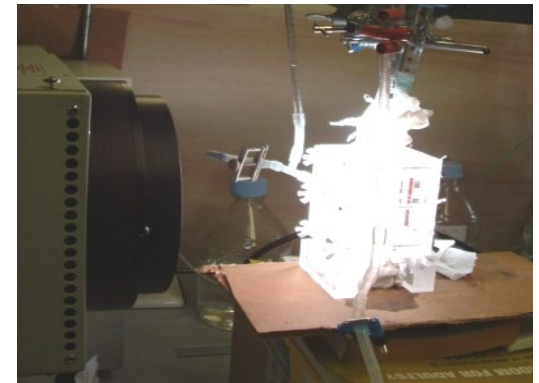
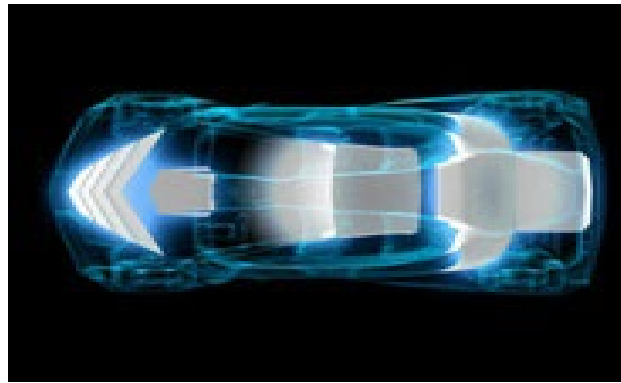
**existing reaction  
equipment**



**UCD-developed  
alternative**

# Applying Chemical & Bioprocess Engineering skills?

## Developing new processes and materials?

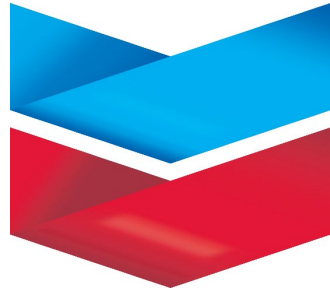


## Solar Energy

# World leaders in Energy from UCD ChemE?



**Chevron**



**David O'Reilly**  
BE (1968)

**Eddie O'Connor**  
BE (1970)

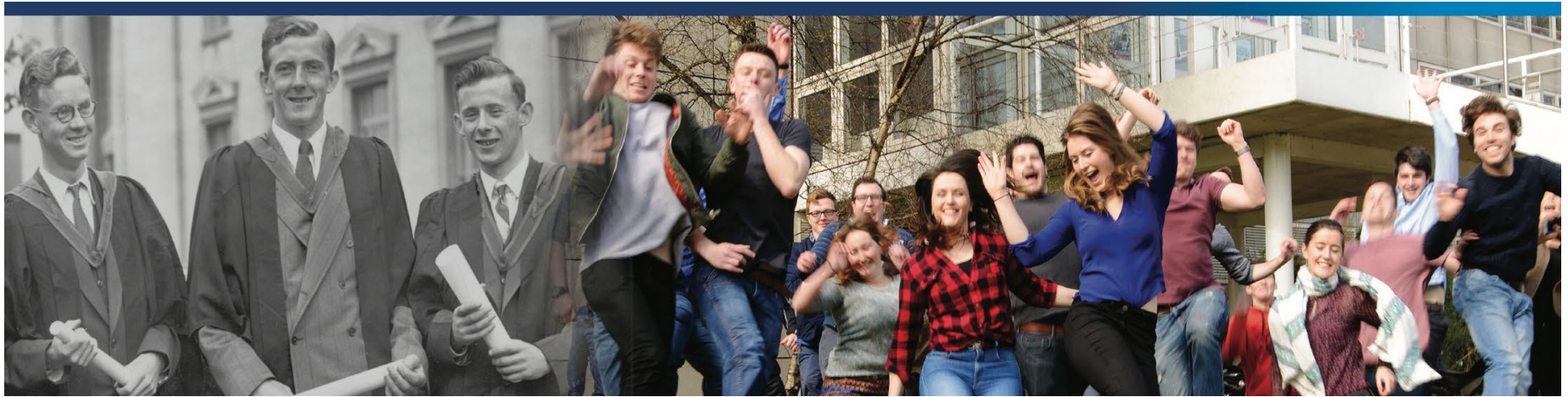


GREEN ENERGY OUT OF THE BLUE

**Martin McAdam, BE (1982)**



# UCD ChemE Graduates: Where are they?



**1956-2024: >1700 graduates**

Destination  
by location



70%



10%



10%

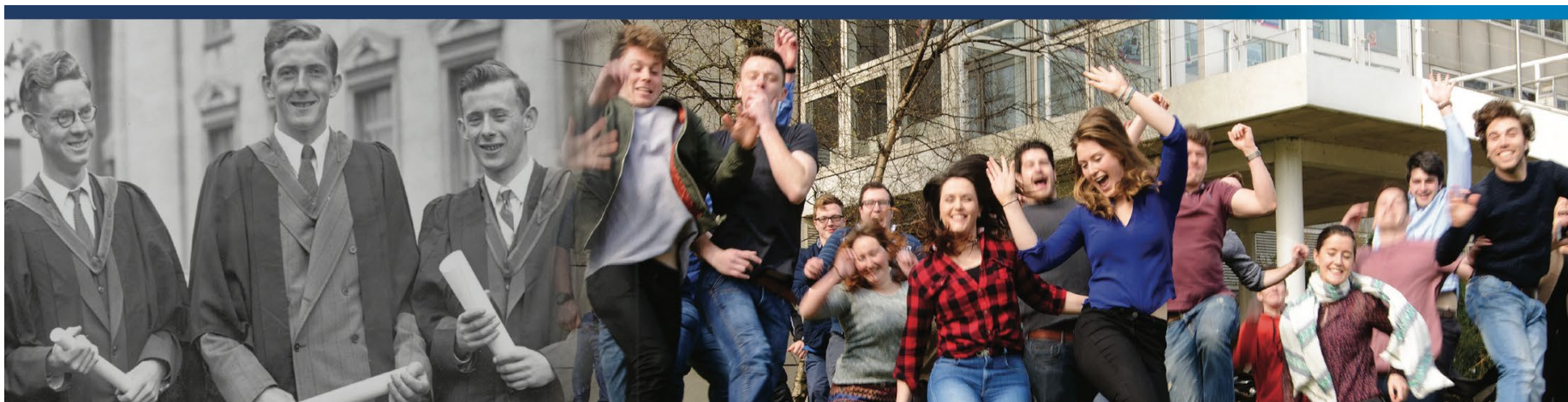


5%

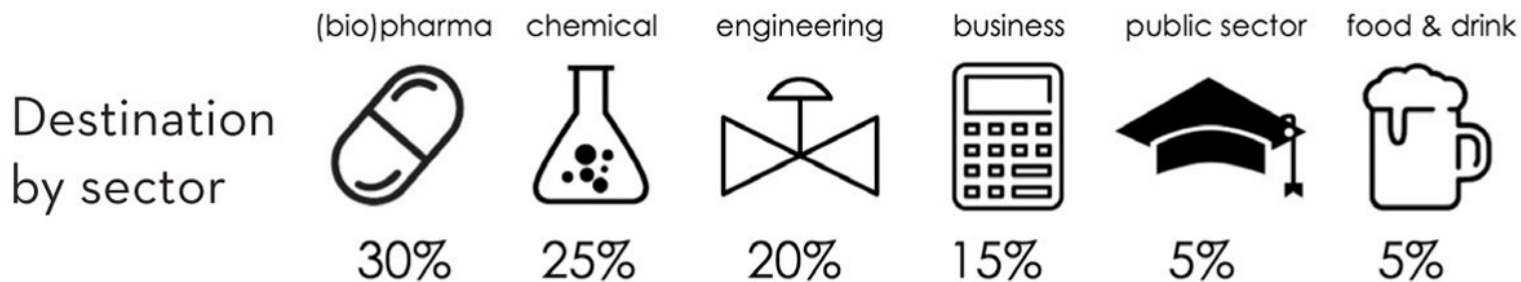
Rest of  
World

5%

# UCD ChemE Graduates: Where are they?



**1956-2020: >1600 graduates**



# Bio/Pharmaceutical Industry in Ireland

- The world's 10 top Pharmaceutical and Biotechnology companies
- Annual exports exceeding €60 billion
- Employment over 35,000 50% graduates



# Alternative Career Paths...?



## **Oliver Tattan [BE, 1985]**

Former CEO ITB, VHI, Vivas Healthcare  
Founder, Director, Insurance  
Regulatory Capital



## **Laura Dillon [BE, 2001]**

McKinsey  
Harvard MBA  
Venture Capital  
now VP Transacting,  
Riverside Partners Europe



# ChemE: BE & ME Programme Structures

Year 1 Engineering (Omnibus)



Year 2 Chemical & Bioprocess Engineering



Year 3 Chemical & Bioprocess Engineering

BE Pathway



Year 4



BE DEGREE  
Level 8

ME Pathway



Year 4



Year 5



ME DEGREE  
Level 9

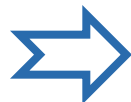
← Which discipline for ME?

← Study Abroad?

← BE/ME? [GPA  $\geq$  2.80]

**ME Internship**  
6-8 month: Jan–Aug  
or  
12 month: Jan-Dec  
[incl. in-company project]

**Optional:** Minor in  
Biochemical Engineering  
for BE or ME: Years 3-4



Where to next?



# What do our students say?



BE/ME Chemical & Bioprocess Engineering Class 2019

# Hear from our recent graduate...



**HELEN AHERNE**  
**ME 2025**



University College Dublin  
Careers Network

# UCD Careers Network Services

[www.ucd.ie/careers/](http://www.ucd.ie/careers/)

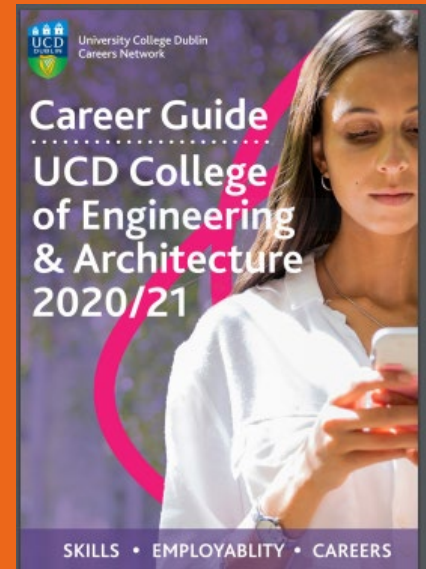
## Looking to talk to someone about your next steps?

Log on to [CareersConnect](#) via SISWeb today and book an appointment to talk to a [Career & Skills Consultant](#)



Meet with a Career & Skills Consultant

Download your  
[College Career Guide](#)



# Chemical Engineering Student Experience

Helen Aherne

# A bit about me :)

- Helen Aherne
- Thurles, Tipperary
- 5<sup>th</sup> Year of Chemical & Bioprocess Engineering
- Masters Route
- Ultimate Frisbee
- Fermenter



Mechanical



Electrical

Electronic

Civil

Structural

Biomedical

Chemical

# Why I chose UCD Chem Eng?

I enjoyed the  
1<sup>st</sup> Yr Chem  
Eng Module

Diverse  
opportunities

Electricity  
scares me

Great job  
prospects

I liked Maths,  
Chemistry,  
Physics





# What is Chem Eng?



Less Chemistry...

More Pumps & Pipes



# Chem Eng & Me!

## Modules:

- Transport Phenomena
- Lab Modules
- Design Modules
- Biotechnology

## Community:

- Great Lecturers
- Small & Close-Knit Group
- Cameraderie!
- Chem Eng Soc

## Great Opportunities:

- Study Abroad: America, Canada, Australia, UK...
- Research Bursaries & Travel Awards!



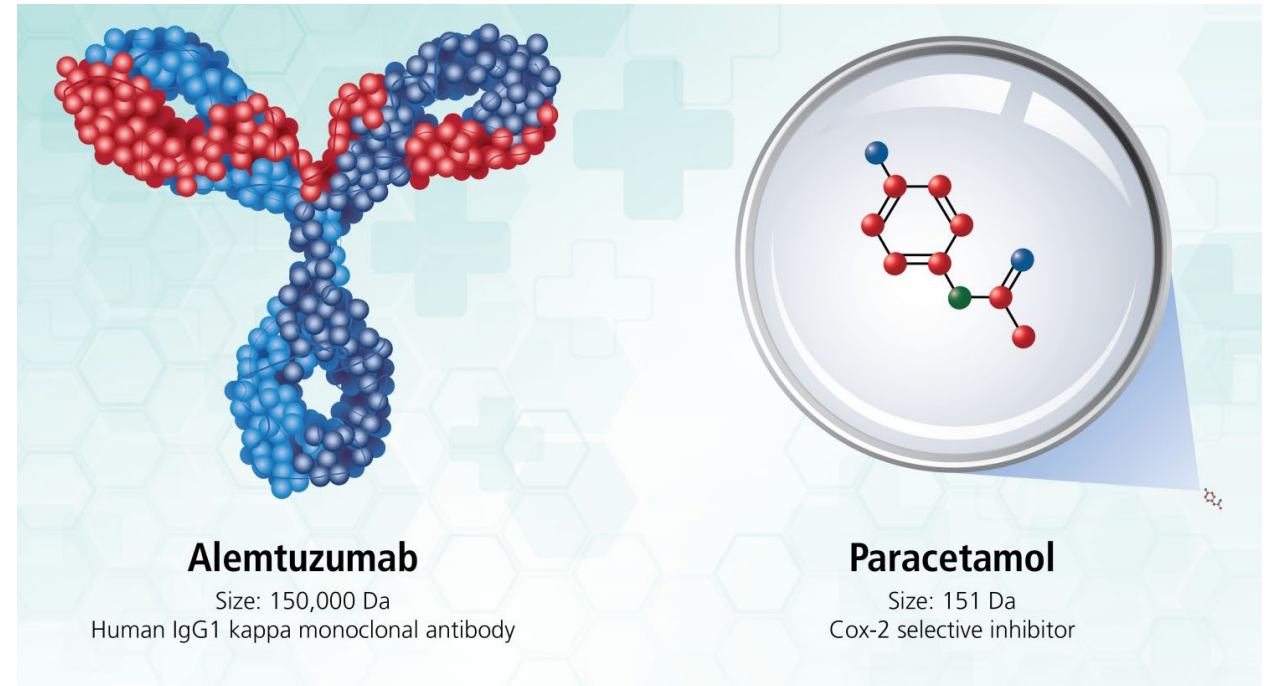
# Pathway Flexibility

## Biochemical Engineering Minor:

- Biotechnology
- Cutting-edge
- NIBRT
- Useful everywhere!

## Masters or Bachelors:

- Can leave after 3, 4, or 5 years!
- Research Projects included in the Bachelors and Masters!
- Internship included in the Masters.



# Internships!

The Lilly logo is written in a red, cursive script font.

- Process Safety Engineer
- Working on a site
- Learn so much!
- Cork site, global company.

The Jacobs logo is written in a bold, black, sans-serif font.

- Process Engineer
- Designing
  - Pharmaceutical Facilities
  - Battery Manufacturing
  - Wastewater Treatment
- Dublin office, global company.



# Research Project!

- In Industry or UCD
- Full-time research project
- Biomethanation of Hydrogen



# So Many Opportunities!

- Bio/Pharmaceuticals
- Design Houses
- Water Treatment
- Food Processing
- Brewing
- Oil Refinery
- Further Study
- And so much more!



# Some Final Advice:

- Ask questions!
- Do not worry too much about grades and take all the other options
  - Study Abroad
  - Travel Awards
  - Extra curriculars
  - Internships

## Questions?

[helenaherne3@gmail.com](mailto:helenaherne3@gmail.com)

