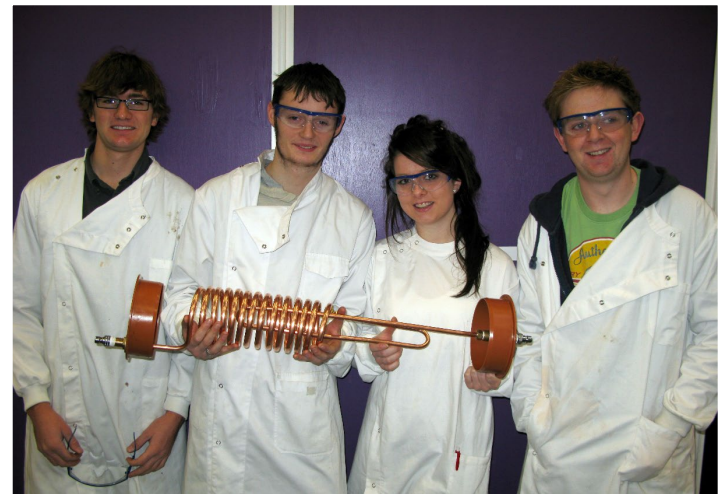
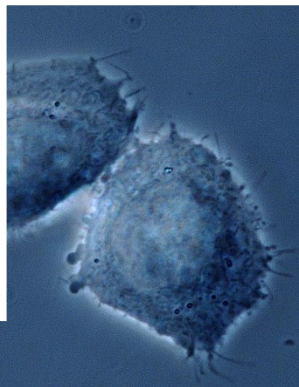
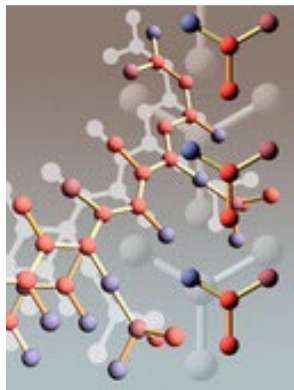
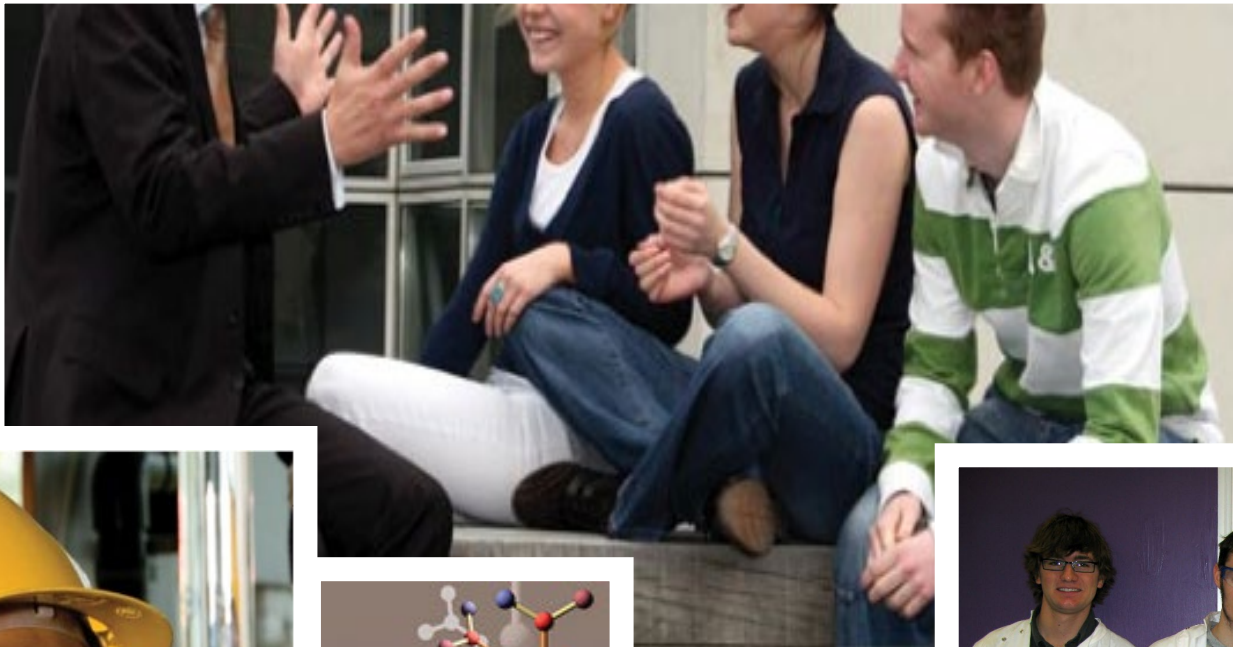


Chemical & Bioprocess Engineering



...bringing science to life

UCD Chemical & Bioprocess Engineering



‘Make your mind up’ time.....

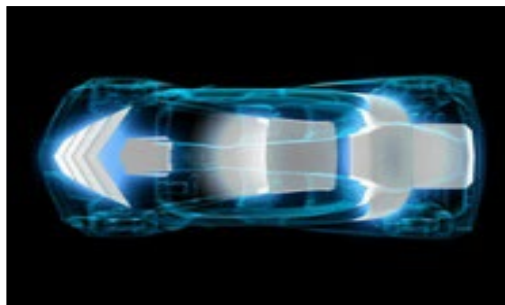
Dr. Ioscani Jiménez del Val
ioscani.jimenezdelval@ucd.ie

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/

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

Fundamental understanding of physical phenomena

Logical, analytical, numerical approach

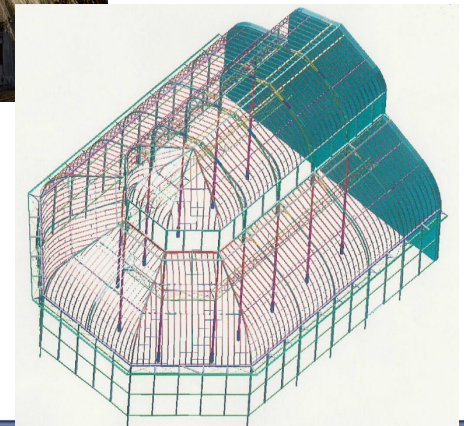
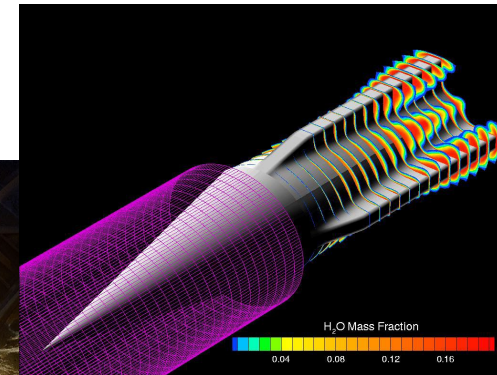
Communication skills

Creativity

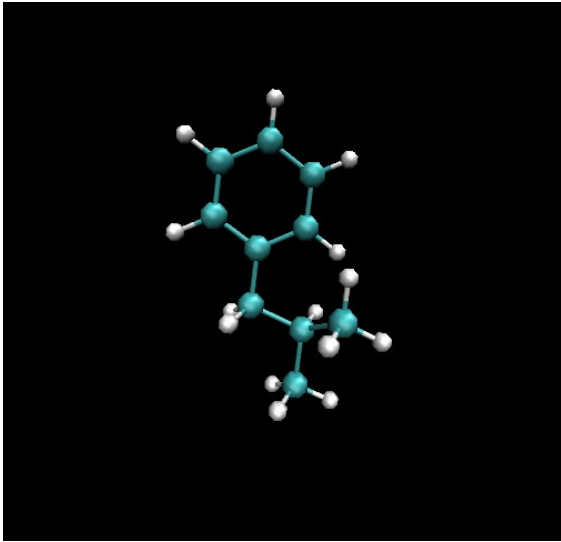
Teamwork

Ability to view problems in context

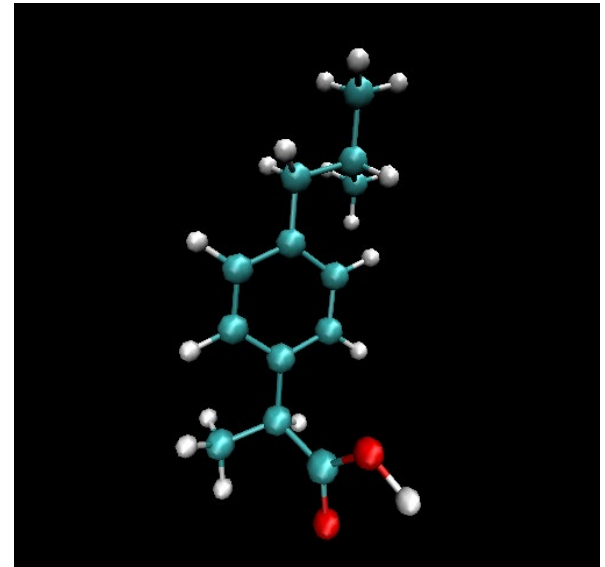
A capacity for life-long learning



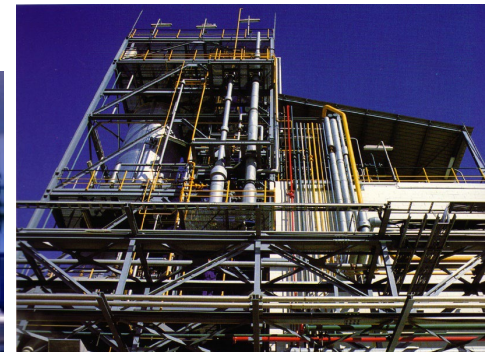
Applying Chemical & Bioprocess Engineering skills?



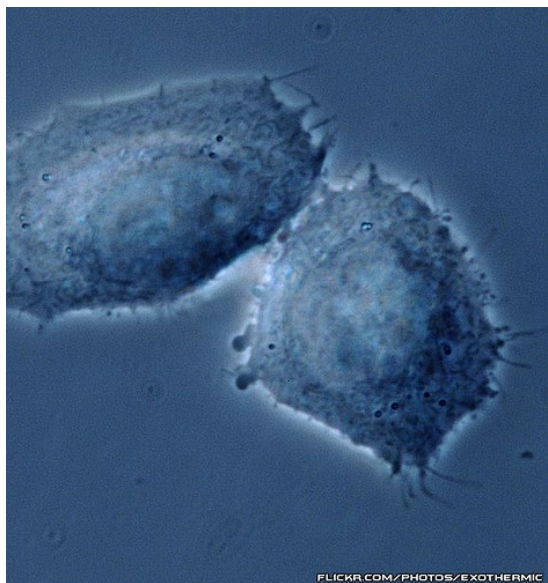
isobutylbenzene



ibuprofen



Applying Chemical & Bioprocess Engineering skills?

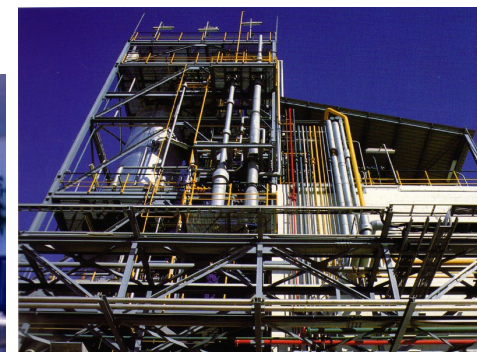


FLICKR.COM/PHOTOS/EXOTHERMIC

Chinese Hamster Ovary (CHO) Cells



ENBREL®



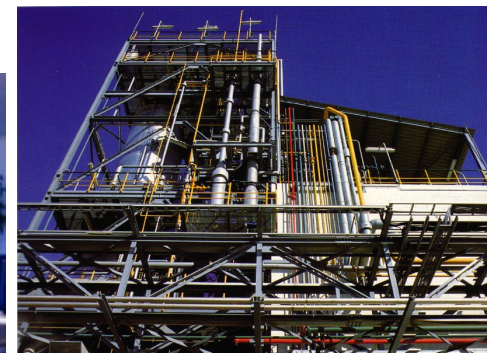
Applying Chemical & Bioprocess Engineering skills?



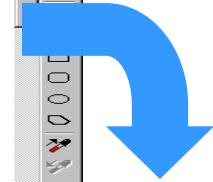
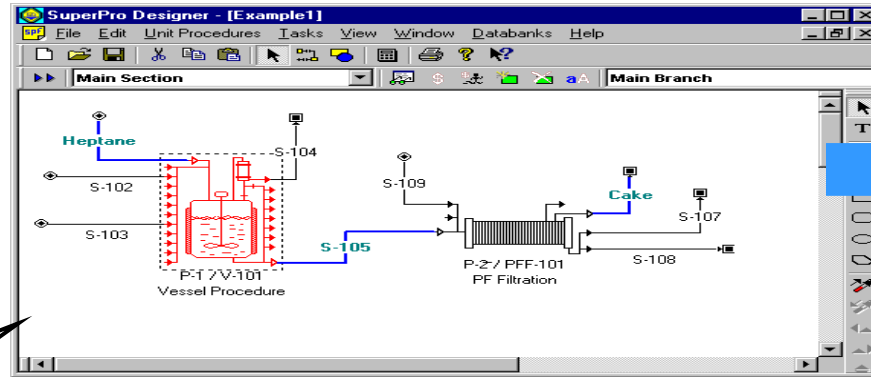
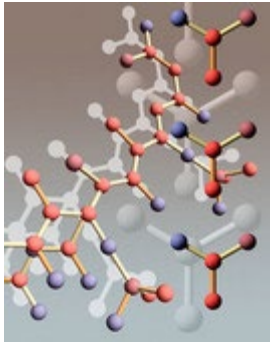
laboratory



production-scale



What do Chemical & Bioprocess Engineers do?



process development,
scale-up & design

plant design,
construction, operation,
management



production

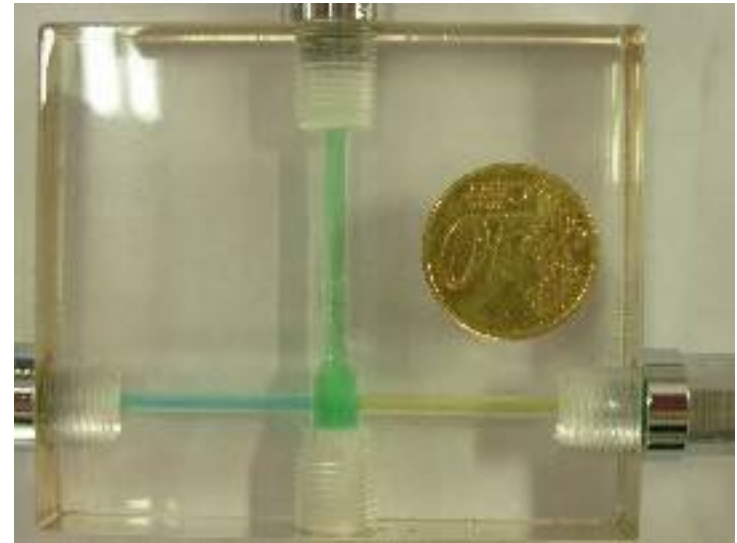


Applying Chemical & Bioprocess Engineering skills?

Making processes more efficient?



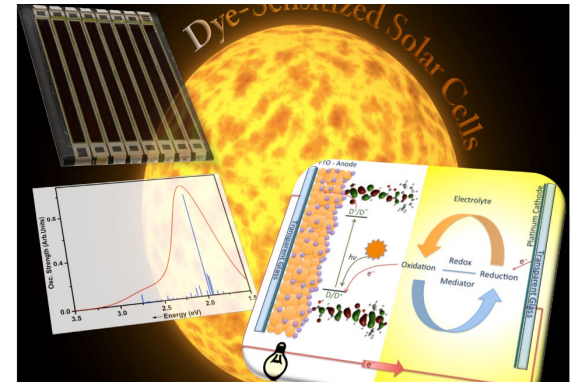
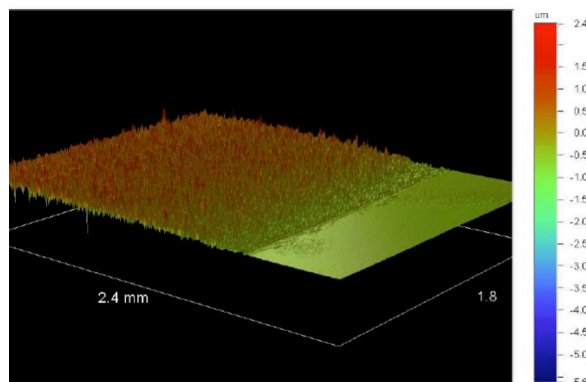
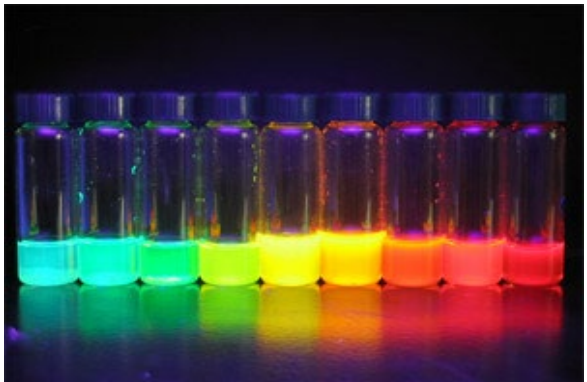
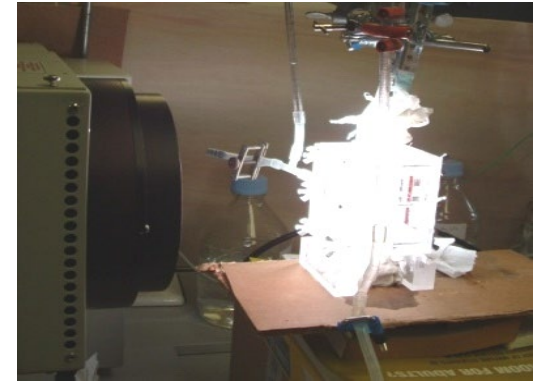
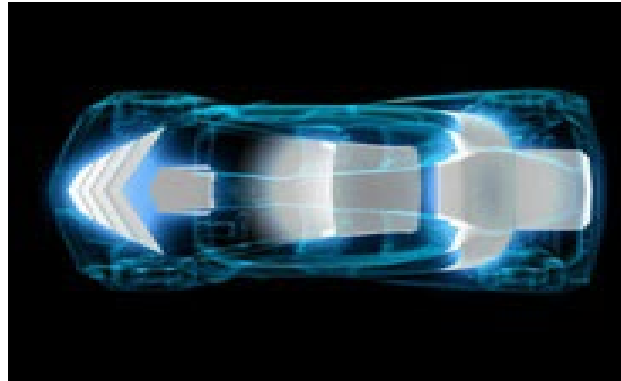
**existing reaction
equipment**



**UCD-developed
alternative**

Applying Chemical & Bioprocess Engineering skills?

Developing new processes and materials?

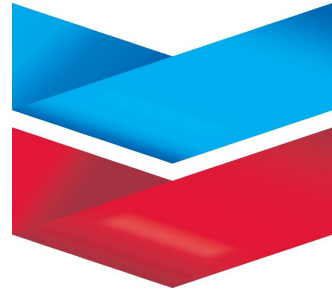


Solar Energy

World leaders in Energy from UCD ChemE?



Chevron



David O'Reilly
BE (1968)

Eddie O'Connor
BE (1970)

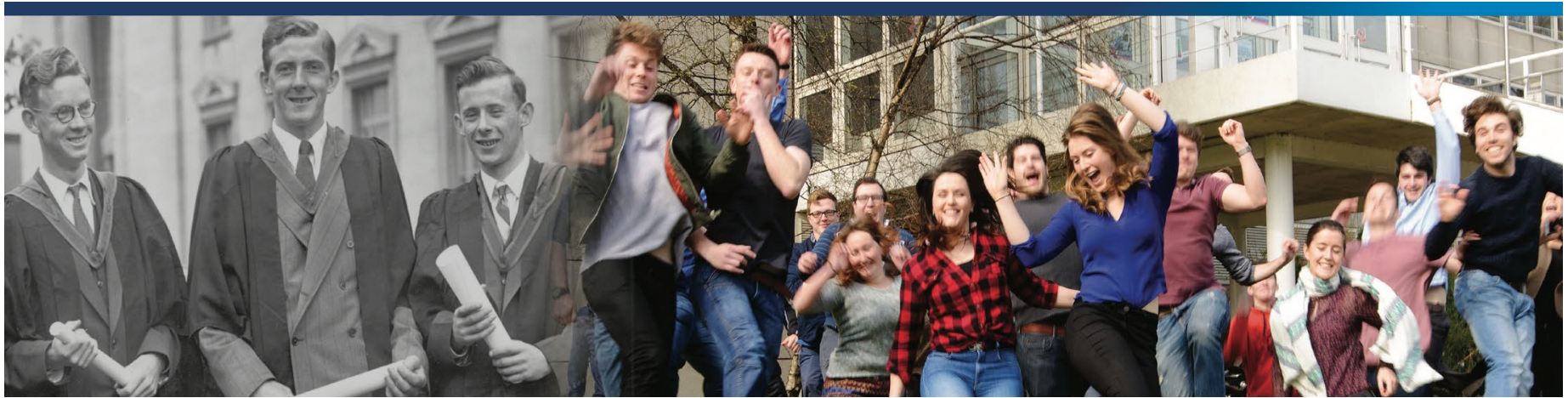


GREEN ENERGY OUT OF THE BLUE

Martin McAdam, BE (1982)



UCD ChemE Graduates: Where are they?



1956-2020: >1600 graduates

Destination
by location



70%



10%



10%

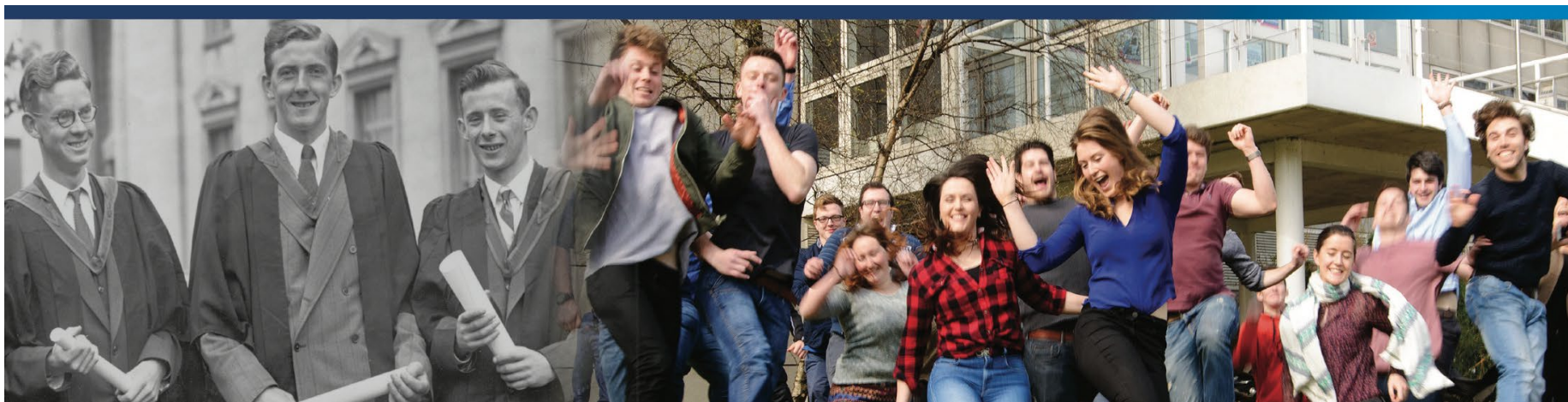


5%

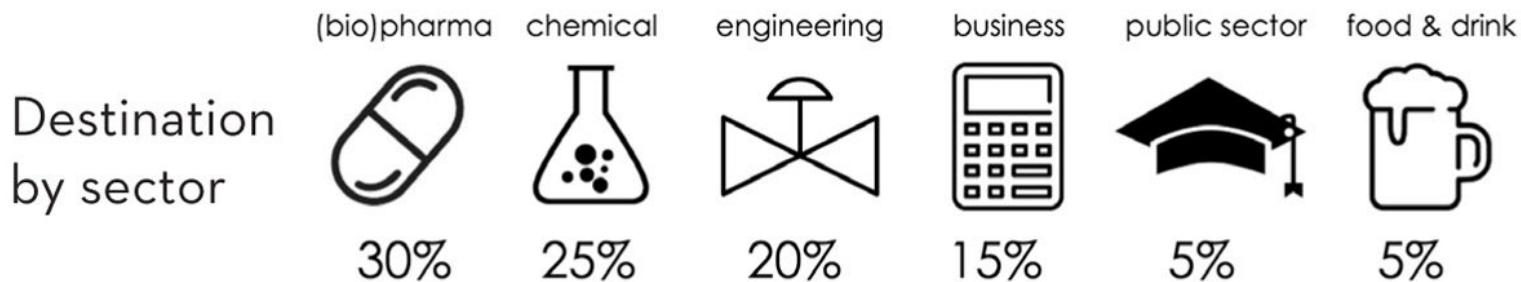
Rest of
World

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

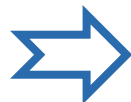
← Which discipline for ME?

← 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...



BILL FITZGERALD
ME 2024



University College Dublin
Careers Network

UCD Careers Network Services

www.ucd.ie/careers/

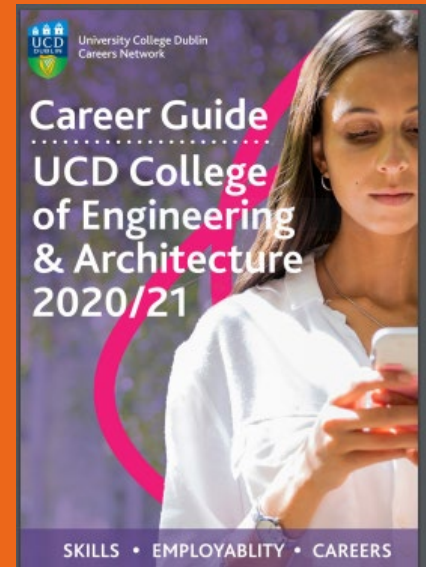
Looking to talk to someone about your next steps?

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](#)



Bill FitzGerald

ME Chemical & Bioprocess Engineering 2024

Graduate Profile

Who am I?



First Year Bill



Final Year Bill

Why am I here?

Mechanical



Civil

Electrical



Electronic

Biomedical

Chemical

Why did I choose Chemical Engineering



I didn't really enjoy the
electronic module or
mechanics modules

The opportunities after seem
really diverse

I enjoy chemistry and maths and I
came to UCD with the view to
doing Chem Eng

My UCD Chem Eng Experience

The Modules

- Computing
- Transport Phenomena
- Lab Modules
- Design Modules
- Bioprocessing

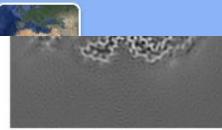
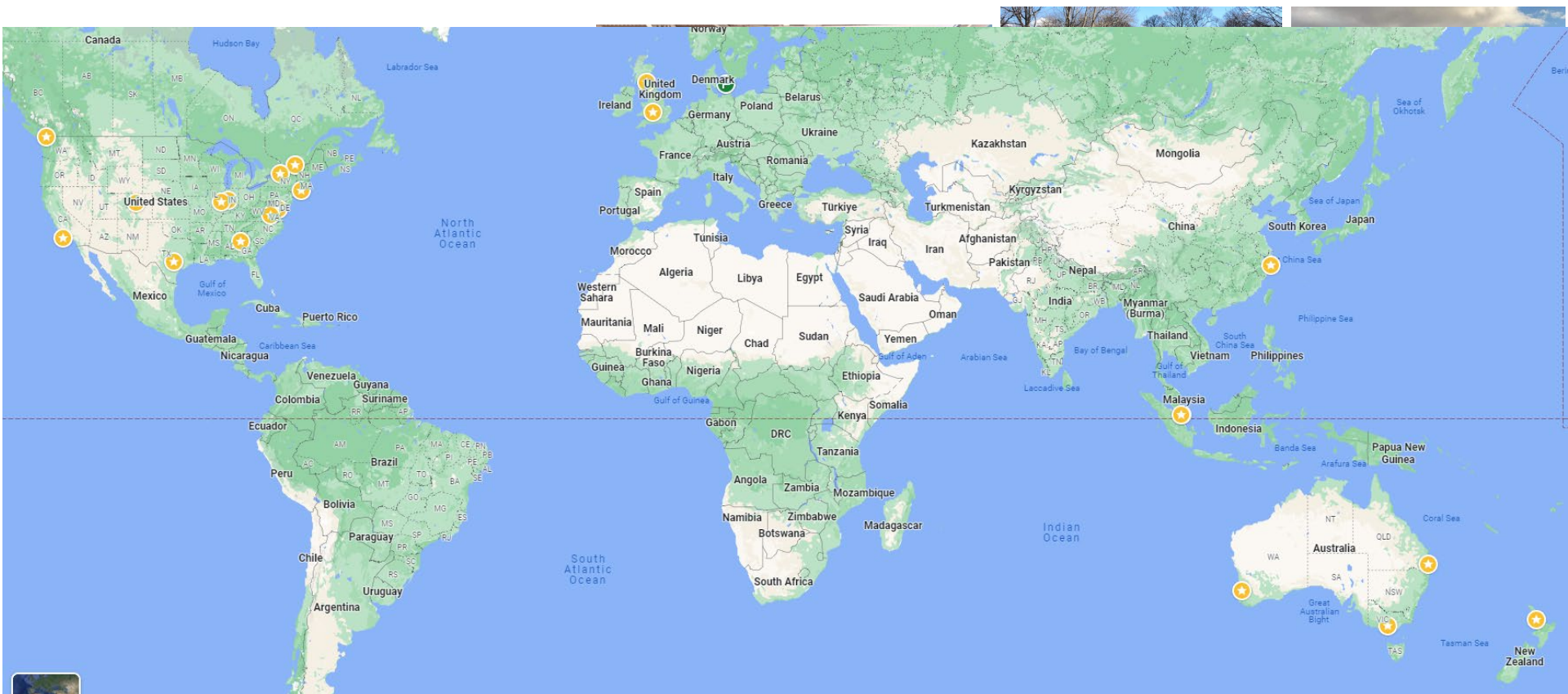
- Chemistry modules
- Thermodynamics



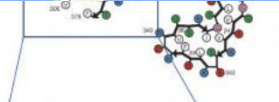
The Community

- Terrific faculty
- Small but close knit group
- Good sense of camaraderie between lecturers, my year and older students





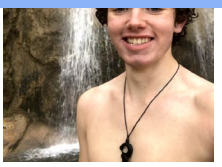
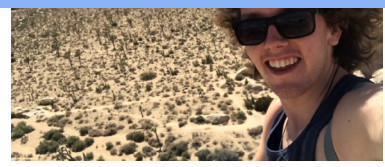
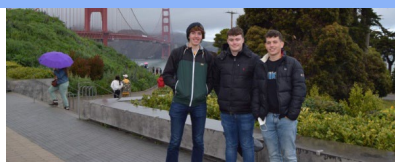
Tau Structure in Alzheimer's



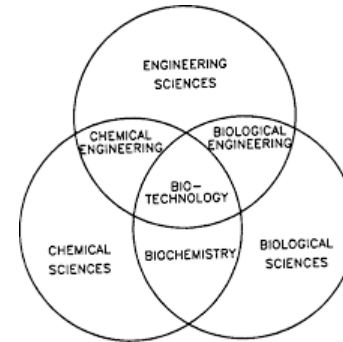
Tau Structure with individual amino acids



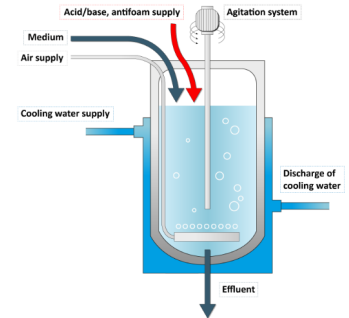
The simulated section where 'clamping' occurs



Pathway Flexibility



Bioreactor



- Biochemical Minor

- Do specific sets of modules with a focus on biotechnology
- Addition to your base degree
- Captures the future direction of pharma industry

- Masters or Bachelors

- Can leave after 3 years, 4 years, or 5 years
- Year long work experience with Masters



Opportunities Galore



 **MSD** Pharmaceuticals
INVENTING FOR LIFE

 **Food and Beverage**

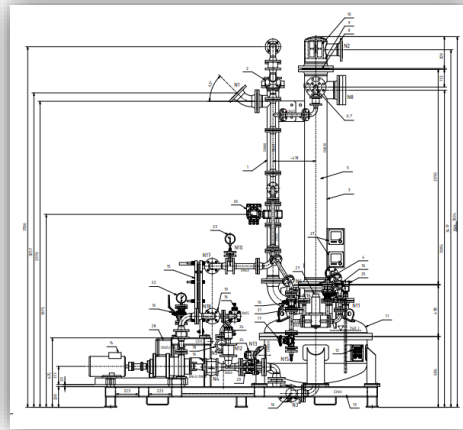
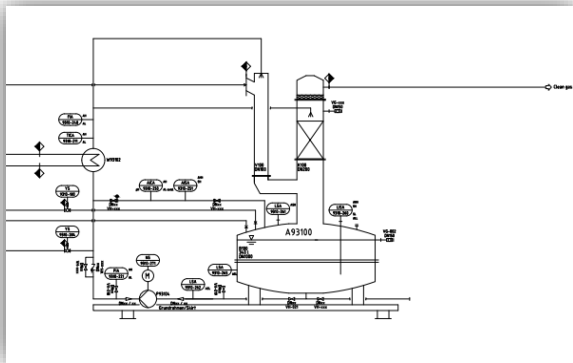
 **Bord Gáis Energy** Energy

 **UCD**
DUBLIN

 **Deloitte.** Management Consulting

Current Job & Future....

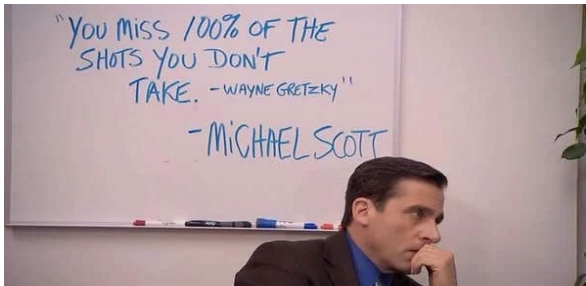
- Working with an engineering design consultancy
- And loving it



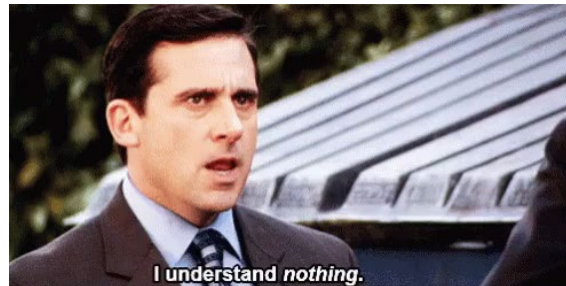
- Return to UCD in January and graduate in Sept 2024 then back to PM!

Parting Thoughts

- Remember that no matter what stream you choose you will have such flexibility and diversity in the options available to you
- Engineers = Amazing



Try everything in college!



Try not to let getting good grades affect your learning



Ask for help

Any questions at all

fitzgeraldbill40@gmail.com