



# RISING TO THE FUTURE

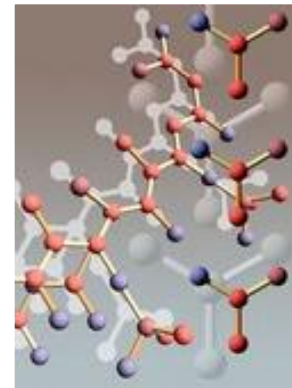
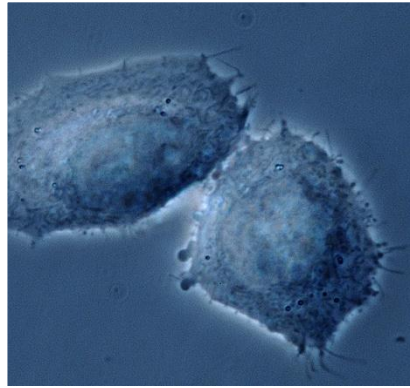
UCD Strategy 2020-2024



# School of Chemical and Bioprocess Engineering

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Programme Director BE and ME





# Bringing Science to Life

ChemBioEng Stage 1 2025



# What do Chemical and Bioprocess Engineers do?

- Mixing and Separating
- Chemical Reactions
- Pumping and moving

All require

- Energy Balance
- Mass Balance





# Chem and Bioprocess Eng: After Stage 1

- Make up your mind time?



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





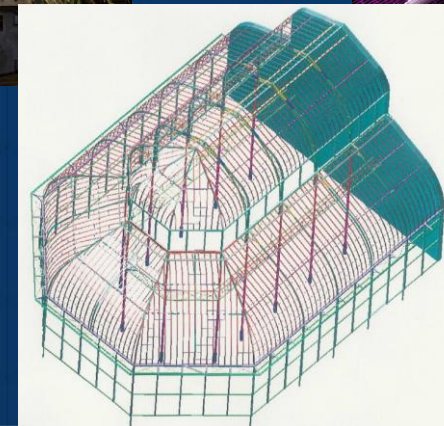
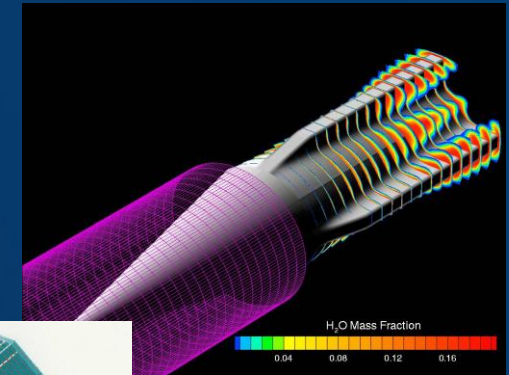




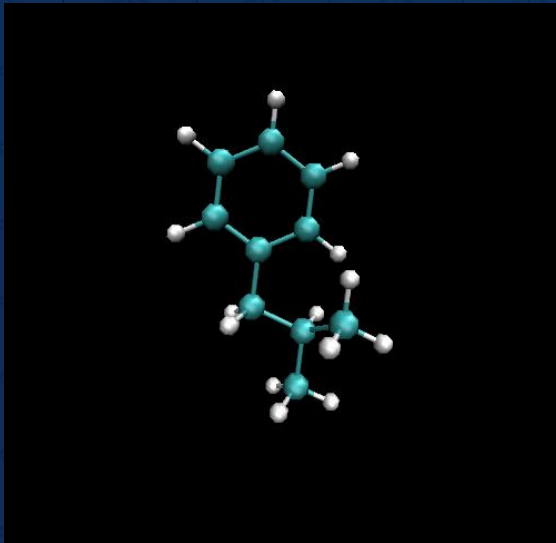
# What skills do all Engineers need?

- Fundamental understanding of physical phenomena
- Logical, analytical, numerical approach
- Communication skills
- Teamwork
- Ability to View Problems in Context
- A capacity for life-long learning

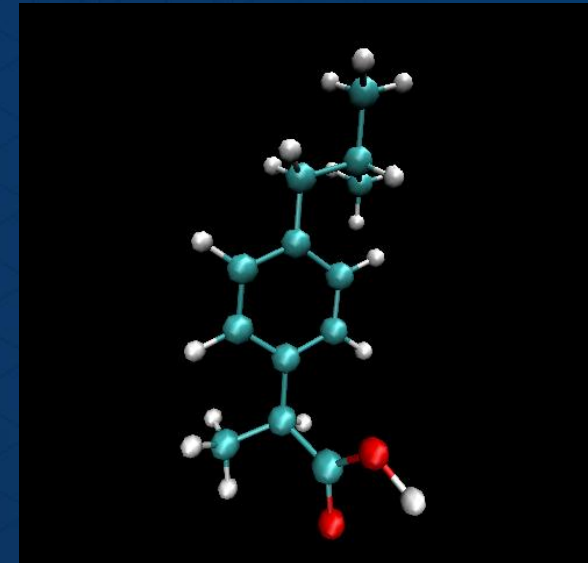
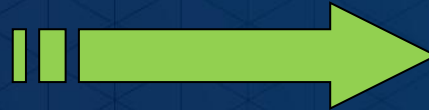
## Creativity



# Applying Chemical & Bioprocess Engineering skills?



isobutylbenzene

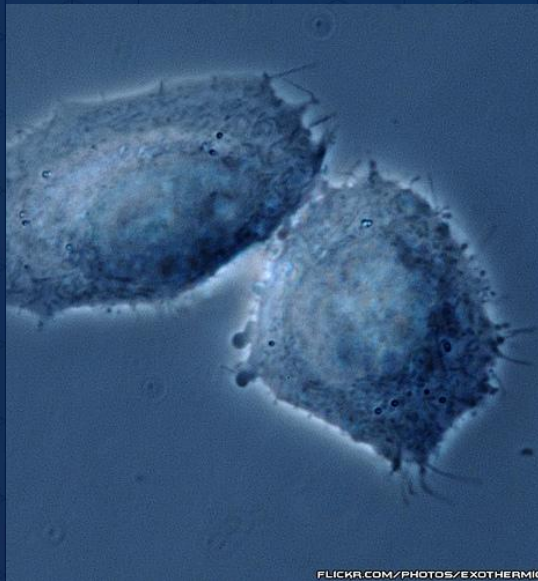


ibuprofen





# Applying Chemical & Bioprocess Engineering skills?



Chinese Hamster  
Ovary (CHO) Cells

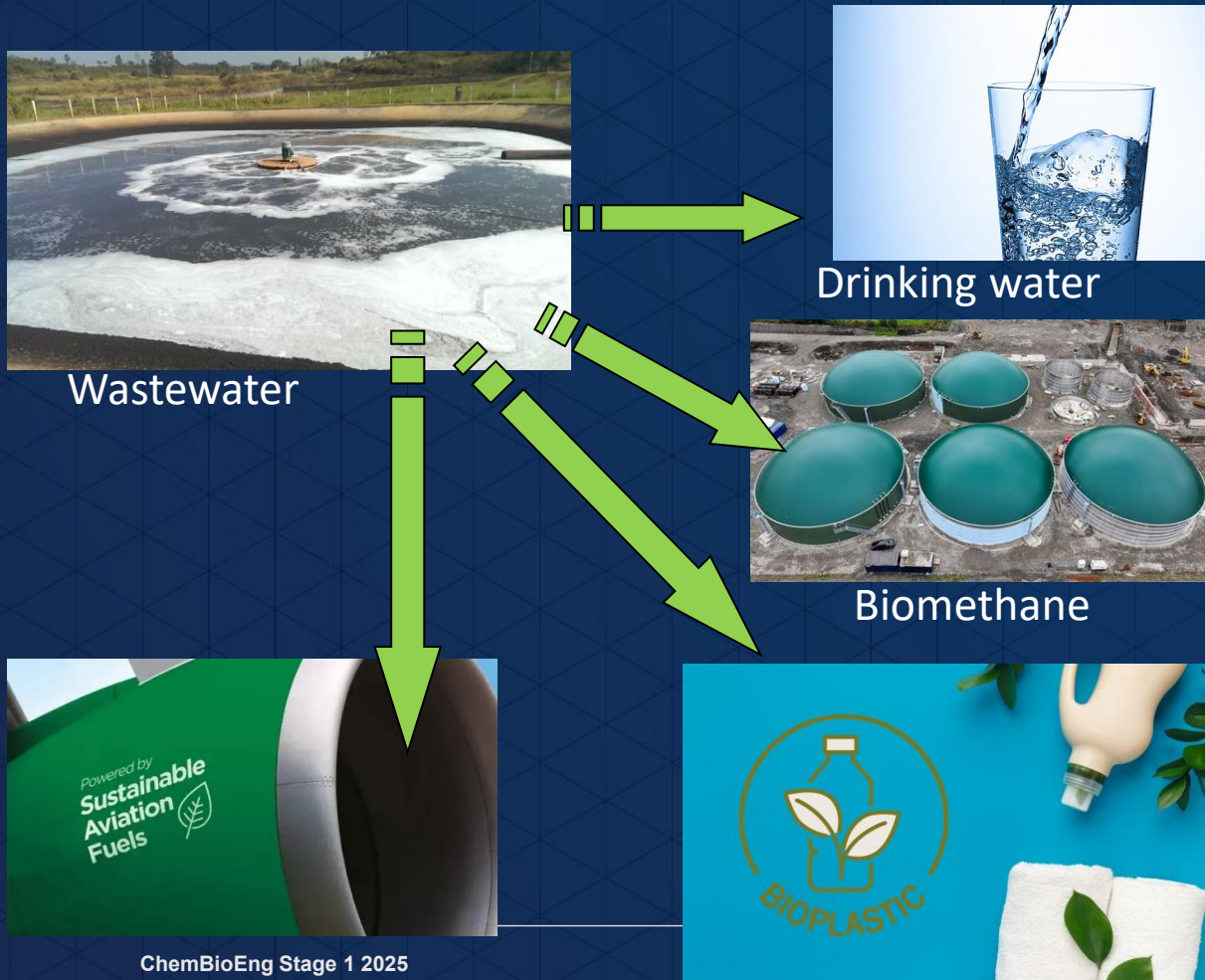


ENBREL®





# Applying Chemical & Bioprocess Engineering skills?



ChemBioEng Stage 1 2025



Recover value from waste



# Applying Chemical and Bioprocess Engineering Skills



laboratory

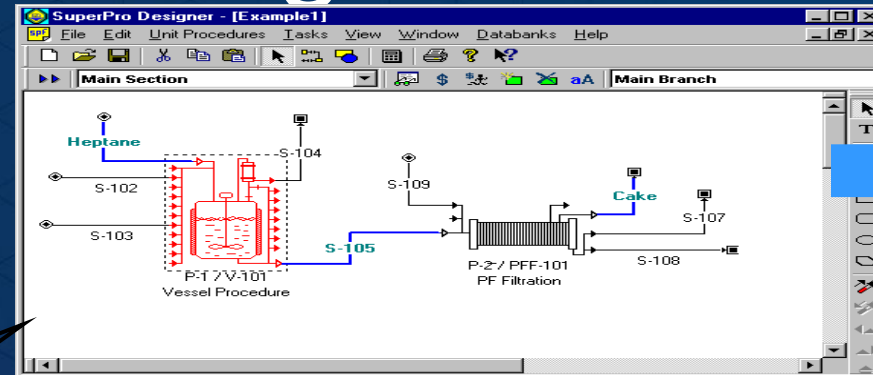
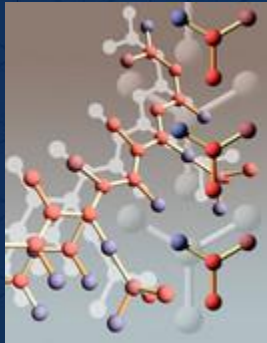


production-scale





# What do Chemical Engineers do?

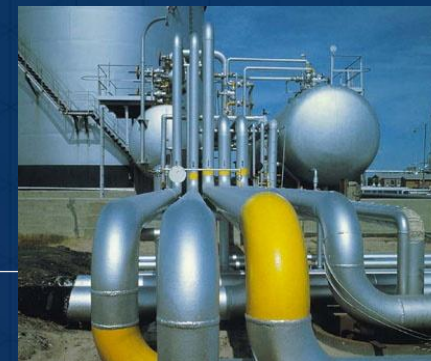


process development,  
scale-up & design

plant design,  
construction, operation,  
management



production





# Start their own business

OXYMEM  
a DuPont brand



NANO-BUBBLES



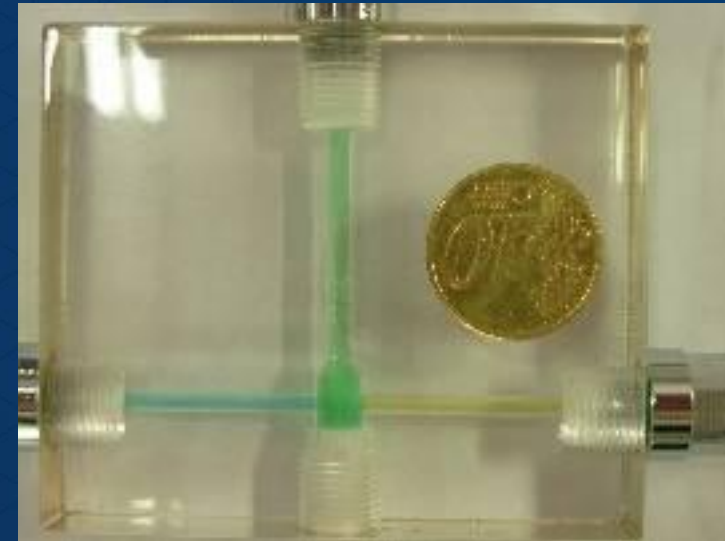
 biosimulytics



# Making processes more efficient



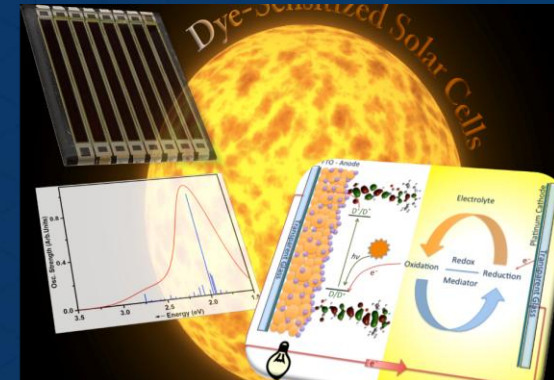
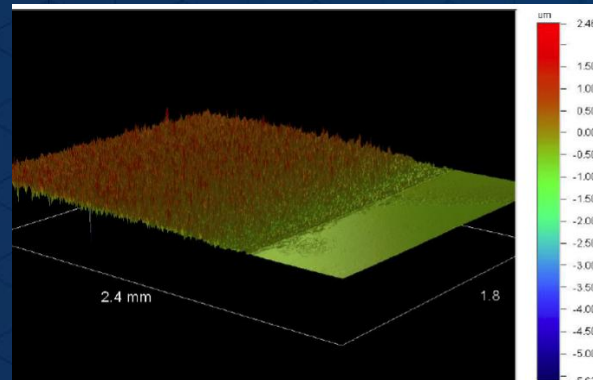
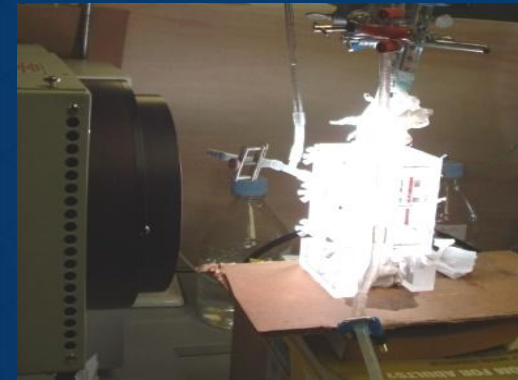
**existing reaction  
equipment**



**UCD-developed  
alternative**



# Developing new processes and materials



# World Leaders in UCD ChemEng



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

**Eddie O'Connor**  
BE (1970-2024)



**Martin McAdam, BE (1982)**

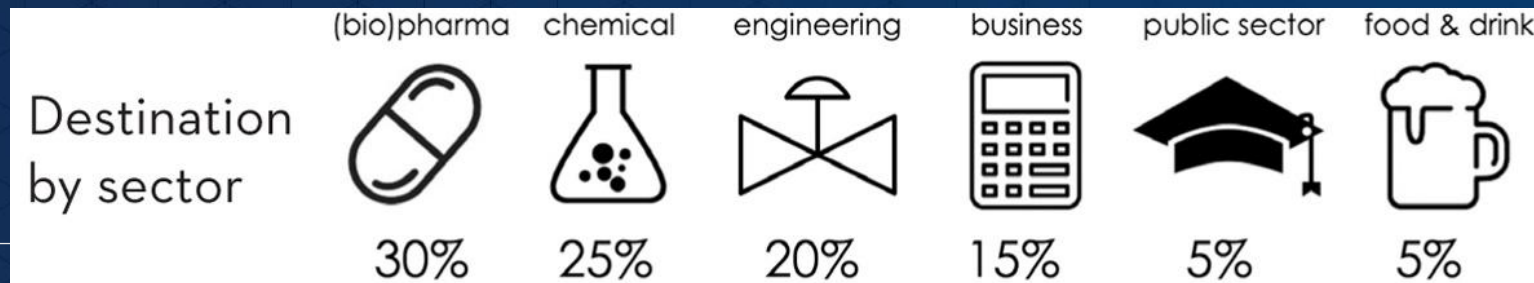




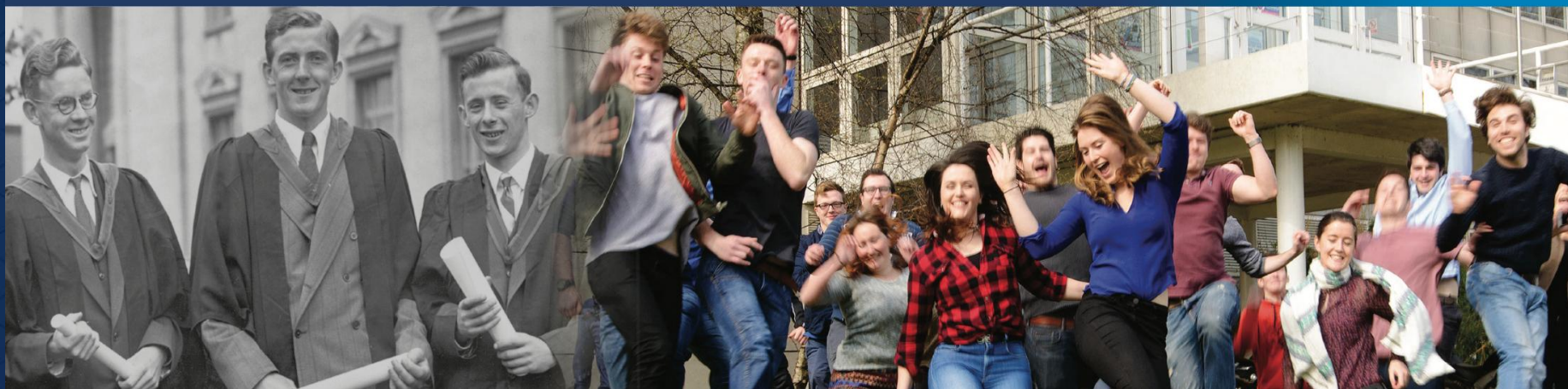
# UCD ChemEng Graduates Where are they?



**1956-2024: >1700 graduates**



# UCD ChemEng Graduates Where are they?



1956-2024: >1700 graduates





# Bio/Pharma in Ireland

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



# Alternative Paths

**Laura Burke [BE, 1992]**  
Director General, EPA



**Oliver Tattan [BE, 1985]**  
Former CEO ITB, VHI, Vivas Healthcare  
Founder, Director, Insurance Regulatory Capital

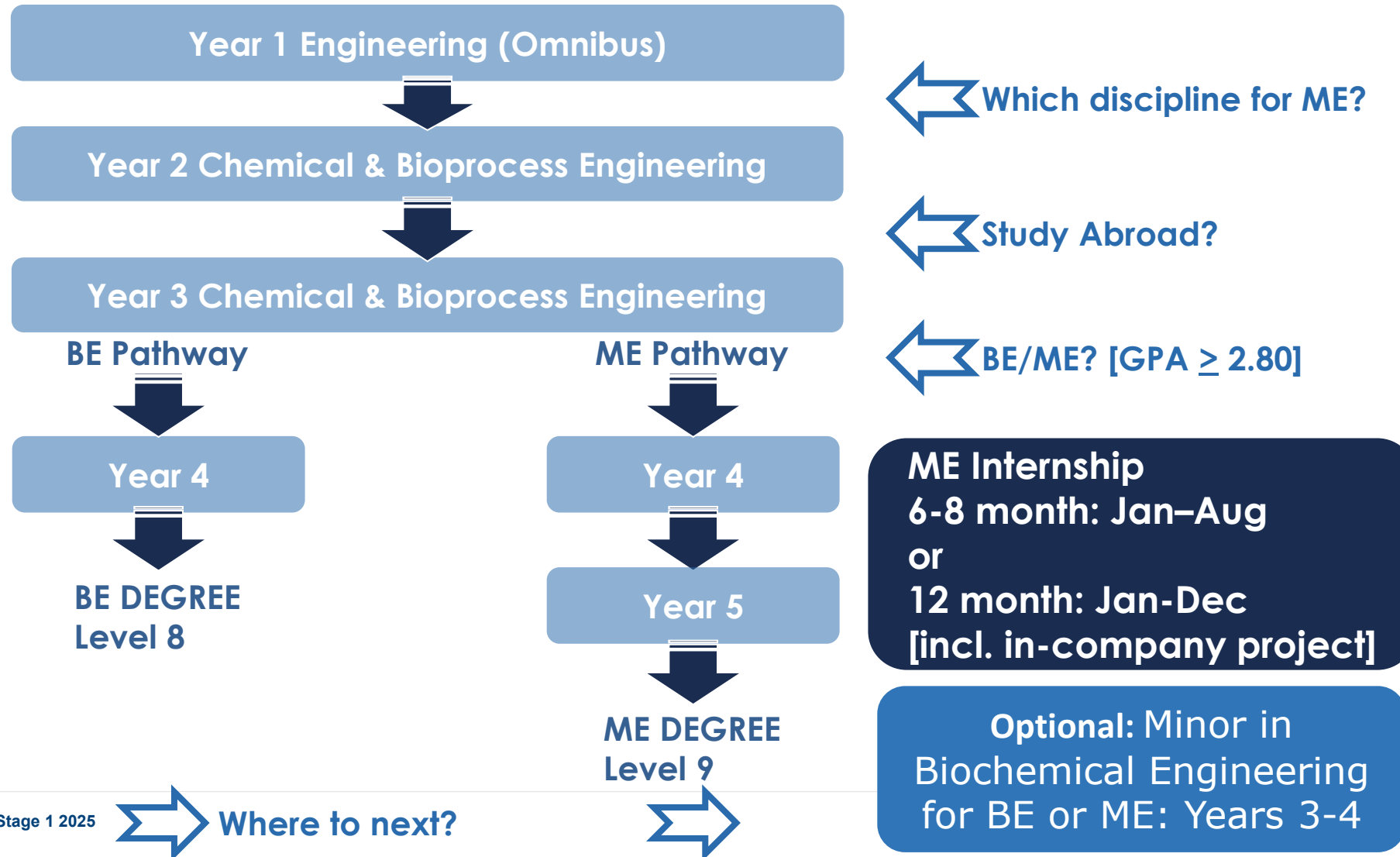


**Laura Dillon [BE, 2001]**  
McKinsey  
Harvard MBA  
Venture Capital  
now VP Transacting,  
Riverside Partners Europe





# ChemE: BE & ME Programme Structures



# Isabelle Barr-Stage 4 Student





# Thank you

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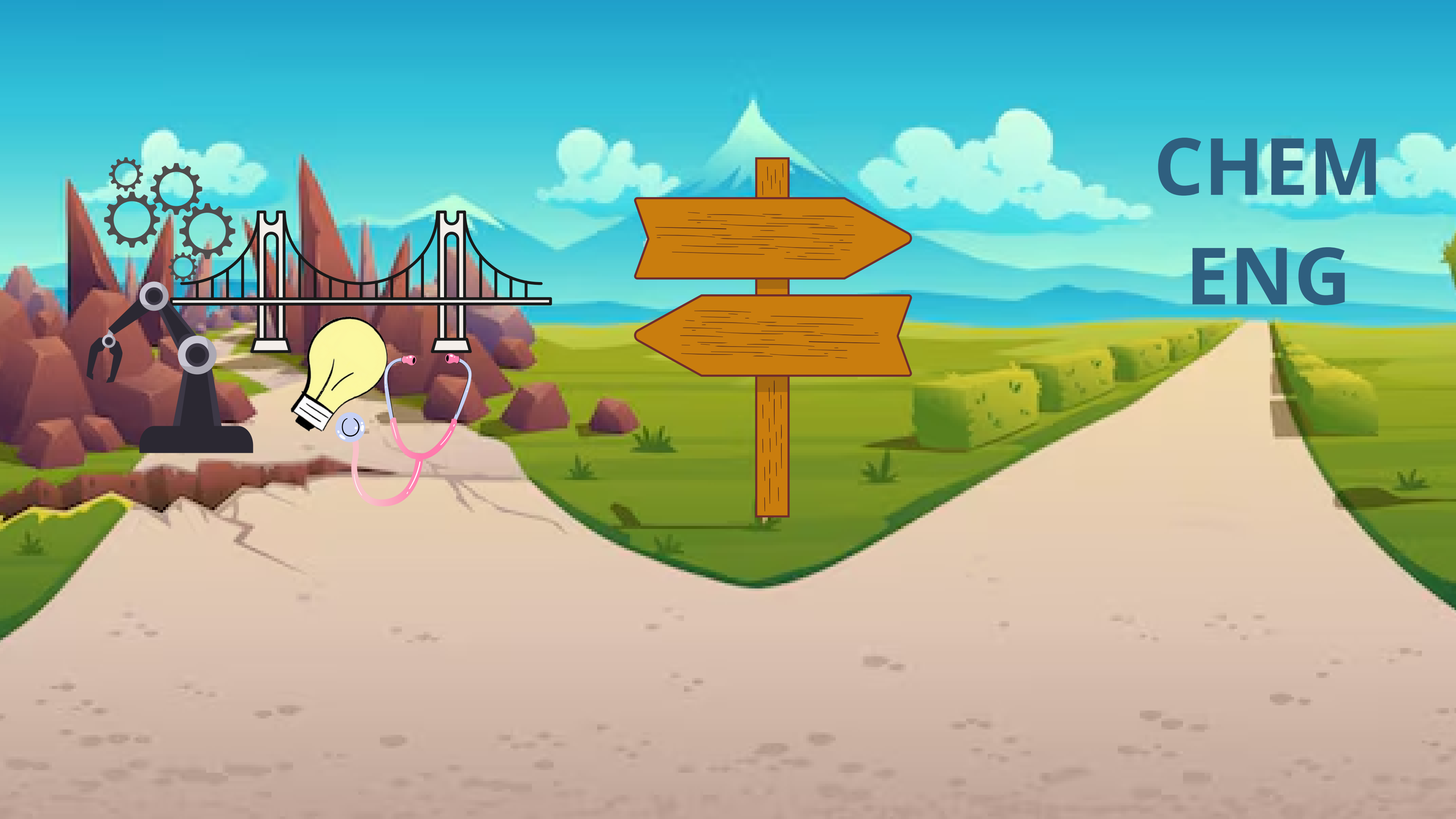


# Why ChemEng

Isabelle Barr



CHEM  
ENG





# *Why ChemEng?*

Smaller class

Hands on learning

Lab work

Enjoyed 1st year module



# *Chem Eng*

## Favourite modules

Thermodynamics  
Labs  
Design project  
Pharma

Smaller class = big  
community  
Good relationship with  
other years  
ChemEng society



# Chem Eng Society



Frank Morton

Class Trips

Sports Day





# Opportunities

**Internship**

**Study Abroad**



# Pathway



- 

## Bachelors

Option for Biochemical minor



- 

## Masters

Includes work placement

DIAGEO



abbvie



# Advice

**Don't chose it just because you like chemistry**

→ only 2 chemistry modules in 2<sup>nd</sup> year

Get involved with class activities

Ask for help!



# Thank You

isabelle.barr@ucdconnect.ie  
If you have any questions!