

# Commercial Skills for Chemists: Introduction & Overview

## Student Introduction

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This resource was produced as part of the National HE STEM Programme



# Student Introduction

## Commercial Skills for Chemists

Module	Innovation	P. Man.	Finance	Research	Feasibility
Resources					
Task	Elevator Pitch on 5 Case Studies	Project schedule for 2 Case Studies	DCF budget for 2 Case Studies	Market report for 2 Case Studies	Feasibility Study for 2 Case Studies + business plan presentation



*KKI Associates and the School of Chemistry, University of Edinburgh*

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### *What are these Modules all about?*

Giving 'Commercial Skills for Chemists'

Doing these modules will help you to

*Understand how chemistry interacts with the 'real world'*

*Explain what you are doing to non-experts*

*Apply for research grants*

*Do work that interests people*

*Get a good (or better) job*

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## What Makes for Employability?

Interviews of Chemical Industry Partners

Key

When we were asked to develop commercial skills material by the RSC the first thing we did was to ask some important employers what they look for in their graduate recruits

genza,  
Galileo

d at

*Working in team based activities*  
*Problem solving*  
*Working through formal project/process systems*  
*Integrating their specialist knowledge with others'*  
*Communication Skills*

## What Makes for Employability?

Interviews of Chemical Industry Partners

*Procter and Gamble, Afton Chemicals (Ethyl), Ingenza,  
Syngenta, Sasol, comments from GSK, Selex-Galileo*

Key findings – potential recruits need to be good at

*Innovation*  
*Working in team based activities*  
*Problem solving*  
*Working through formal project/process systems*  
*Integrating their specialist knowledge with others'*  
*Communication Skills*

## Employability - comments

What would you regard as being the key skills of chemistry graduate recruits ?

*'Its rare that people use more than 10% of the science they know at any time with us. But what we need is for them to understand, interface and interact with people from other disciplines (commercial and technical such as engineers and life scientists)'*

*'We interview hundreds of potential 'strategic recruits' each year. Most fail their technical interviews, not because they don't know their science but because they are not good at applying what they know to problems we might ask about'*

## 5 Modules **Business skills resources**

*Innovation, Project Management, Finance, Chemical Markets, Feasibility Study and Project Pitch*

Teams of 4-6 students will work to produce defined outputs from each module, with various resources to help them

Modules can be done separately, but all 'hang together'

Each Module has:

- Task Briefing
- Lecture Resources
- Interactive Exercise
- Other Materials including videos and journals

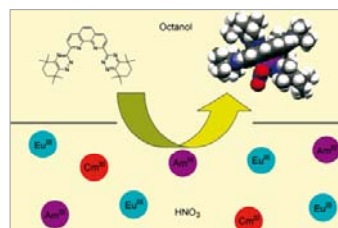
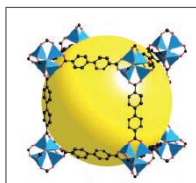
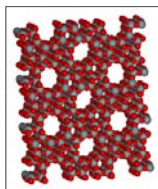
### Overall Task Briefing

- Student teams play the role of a group of technologists working for *Mega Chemicals plc.*
- Your task is to evaluate new technologies and recommend which ones *MegaChem* might wish to take to market.
- Each module is structured like a real part of the technology project process used by many chemical companies
- Initially there will be 5 potential projects that *MegaChem* are interested in
- Eventually, teams completing the modules will have produced technology assessments, market research, feasibility studies, financial budgets, a project plan, and an assessed 'pitch' for one or more of the potential technology projects

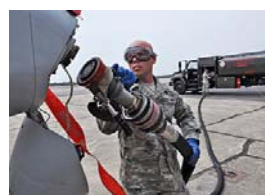
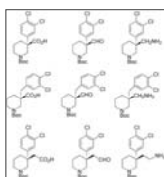
### Overall Task Briefing 2

- You will be in teams of 4-6. You may organise yourselves in any way you like to achieve the tasks below
- You will evaluate all 5 potential projects and produce a 2 minute 'elevator' presentation of the main *benefits* of each.
  - You will then chose 2 of the 5 projects for further study
- For those 2 projects you will produce 3 outputs
  - A piece of market research
  - An outline of the main tasks and milestones of the project
  - A budget describing the main financial costs and benefits of the project
- You will integrate those 3 outputs into Feasibility Studies taking a critical look at the commercial viability of the the two projects
- You will select the best/preferred of the 2 projects and produce a 15 minute presentation or 'pitch' explaining why *MegaChem* should proceed with this project

## 5 Potential Projects



- Zeolite anticorrosive...oxidation catalyst...new ligand



- Chiral intermediates...lignin/biomass catalyst

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## Student Resources

- You will be given handouts from lectures on innovation, market research, project management, project finance, and feasibility studies given to chemistry students at a UK University in 2012
  - Parts of these lectures are available as videos



- There will be interactive workshops or business 'games' on market research, project management, and project finance that you may attend individually or as a group



- There is the Library and the Internet!

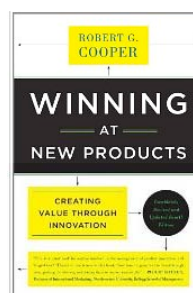
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## Student Resources

- Paper: Great Mistakes in Technology Commercialisation
  - *Journal of Strategic Change*, Volume 10, Number 7, pages 383-390, John Wiley & Sons, (November 2001)
  - Download here:
    - <http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/001/419/Great%20Mistakes.pdf>



- Book: *Winning at New Products*, Robert G Cooper
  - Basic Books; 4th edition (28 July 2011)
  - ISBN-13: 978-0465025787
- Journal: *Chemistry World*, published by Royal Society of Chemistry, all/any editions from 2010 and 2011
- There are tutors with notes, hints and guidance!



## *How you will be assessed*

- Each module has some unassessed training exercises, and at least one required output
  - May be PowerPoint slides, spreadsheets, or a written report
- We will give an overall team mark for each output
- The marks will be
  - Borderline (in which case we'll ask you to do more work)
  - Pass
  - Distinction
- Each team is asked to suggest whether any members should be individually marked up or down a step
  - Team gets distinction, but 'free-loader' gets pass
  - Team gets pass, but outstanding contributor gets distinction