



There be Dragons.....





Business Skills and Awareness

- Introduction to Industry (External Lecturers)
- Intellectual Property and Routes to Market
- Finance
- Improving Efficiency of Business Processes (Lean Manufacture)
- Leadership, Management and Effective Teams
- Additives Challenge Business Exercise
- Supported by on-line resources:
- <http://www.rsc.org/learn-chemistry/resources/business-skills-for-chemists/>



Intellectual Property Quiz

- Work in teams of three with mobile device
- Use Socrative platform <https://b.socrative.com/login/student>
- Read Scenario Before Session
- Questions on screen with multichoice answers
- Time limit – correct answers and students choices compared and discussed
- Can access and analyse results (formative assessment)



Intellectual Property Case Study

Prof. Andrews is a Professor within the School of Chemistry at the University of the East Midlands (UoEM), she is a UK expert in organic synthesis.

During the study of his Ph.D., Mr. Evans tried to synthesise a new drug aimed at selectively killing cancer cells, under the supervision of Prof. Andrews. Upon analysis of the product of this reaction, Mr. Evans noticed that the reaction had not in fact yielded the expected product, but had instead led to another compound, compound **X** which showed no activity against the cancer cells for which the original compound was designed.

Following the disappointment that compound **X** was inactive against cancer cells, the compound was screened against a wide range of other drug targets available within the Medical School of UoEM by a final year project student, Miss Fall, who was working in the group of Dr. Brown. The results of this drug target screen were very positive identifying several drug targets against which compound **X** was active. This prompted Miss Fall to conduct a literature review to establish other compounds which are active against the newly identified drug targets of compound **X**, which showed that compound **X** may act as a new treatment for HIV/AIDS.

Prof. Andrews has worked in close collaboration for many years with a group in Australia, which is led by her friend Dr. Cairns, who is interested in retroviral diseases including AIDS. Both Prof. Andrews and Dr. Cairns attended a conference in the USA in 2007, where, over dinner, they discussed aspects of the work relating to compound **X**.



Additives Challenge Business Exercise



- Each Company's task is to devise a new product and prepare a presentation that will win the business from a potential client.

Lubrizol



The Exercise



- Team Structure
- Budget
- Deadlines
- Presentation



Key Skills



- Finance
- Intellectual Property
- Teamwork
- Leadership
- Communication Skills
- Negotiation
- Finding Information
- Sales and Marketing
- Chemistry and
- Chemical Engineering



“I really enjoy this module, due to the fact that the content helps us students see how chemistry is applied to industry and many other sectors outside of academia. I also enjoy the range of lecturers and topics.”

“I found the session where’s the quiz was used in regard to patenting very useful and interesting . I know it actually got a lot of people within our Year talking about it and discussing it”

“I enjoyed the alternative perspective to utilizing my degree in Chemistry. I hope to open my own business one day. I will come back and thank you when I am a billionaire :). (Just don't ask for a "small loan").”

“Really enjoy the practical knowledge from industry that Trevor has.”



Challenges and Learning

- Space in the Curriculum & Accreditation
- Who should teach this module?
- External Lecturers
- Assessment
- Flipped Classroom / Self Directed Learning



Future Developments

- Extend approach to all years of the UG curriculum
- Borden to include examples from other disciplines
- Degree Apprenticeship Programme



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