

Chemistry: Idea to Market

Module Handbook

Developed by Dr. Stephen Maw, Dr. Samantha Pugh and Dr. Patrick McGowan, University of Leeds

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



Chemistry: Idea to Market

Module: CHEMXXXX

Module Information

School of Chemistry

University of XXXXXX

Chemistry: Idea to Market
Module: CHEM2600

CONTENTS

1. Introduction	4
2. Background	4
3. What will I get out of doing this module?	5
4. What is required from you?	5
4.1. Student Managed Learning	5
4.2. Case Studies	6
5. Module Structure	6
5.1. Workshops	6
5.2. Industrial Case Study	7
6. Assessment	7
6.1. Progress portfolio (Weighting 50%)	7
6.2. Project Pitch (Weighting 30%)	8
6.3. Summary Reflection (Weighting 20%).....	8
7. Guidance: The Progress Log	8
7.1. How to minute meetings.....	8
8. Guidance: The Project Pitch	13
8.1. Presentations — general	13
8.2. A Presentation vs A Pitch	14
8.3. General guidelines and pointers.....	14
9. Guidance: Self Reflection	14
10. Group work	15
10.1. Calculating each Individual Contribution to Group Work.....	15
10.2. What if something goes wrong? Yellow and red cards	16
11. Workshop 6: Practise Project Pitch	17
11.1. What is Feedback?.....	17
11.2. Receiving feedback.....	17
11.3. Giving feedback.....	18
12. Contact details	18
13. Acknowledgements	18

14. References	19
15. Appendices	20
15.1. Appendix A: Progress Log Assessment Sheet	21
15.2. Appendix B: Project Pitch Assessment Sheet	22
15.3. Appendix C: Summary Reflection Assessment Sheet.....	24
15.4. Appendix D: Group work: Evaluating the contribution from each group member (Student Sheet)	26
15.5. Appendix E: Details of how the Peer Assessment Score is calculated.....	27
15.6. Appendix F: Declaration of Academic Integrity Form.....	28
15.7. Appendix G: Self Reflection Sheet.....	29
15.8. Appendix H: Skills Audit.....	30
15.9. Appendix I: Self Reflection Sheet – Practise Project Pitch	31
15.10. Appendix J: Feedback Sheet – Practise Project Pitch.....	32

1. Introduction

Welcome to the 'Chemistry: Idea to Market' module. This module handbook is intended to give you an overview of the module, how it will run, what you can expect to learn as well as what will be expected of you. It also contains some background information that you will need to know to undertake some of the coursework successfully. However, before all that, some background on why the course has been produced.

2. Background

Why a module about business/commercial skills in a Chemistry Degree? Well the first thing to say is that this module is not about starting your own business – its remit is much broader than that. When you complete your studies most of you will undertake some form of work, whether paid or unpaid. Even if your desired field is not commercial in the sense that making money is not the primary aim (e.g. charity sector) the organisation will still be subject to commercial pressures and influences (e.g. sufficient funding to exist be able to promote its activities) and will have targets to achieve and an organisational structure in which you will be expected to work. This course has been designed to give you the background information and develop your skill set to allow you thrive in a range of situations. Given you are doing a Chemistry or Chemistry-related degree the major piece of work is a case study set in a Chemistry context. However, a lot of what you learn (e.g. approaches to problem solving, presentation skills, teamwork) are transferable to many situations, not just the Chemistry Industry. Here are a couple of quotes (courtesy of KKI Associated Ltd) from a recent survey of graduate wants of 10 Chemical Companies in Scotland that sum up the need for more than straightforward Chemistry knowledge

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.

It's 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)

Lectures are not the best format to address these issues so this module will be delivered as a form of **student managed learning** (see later section for a description and benefits of this process) and as such may seem very different to other modules and teaching you have experienced. Experience has shown that most students enjoy this form of learning as it gives them the freedom to explore areas of genuine interest and experience the joy of discovery.

The module is based around a series of team-based workshop sessions to help develop your skills, learn new things and make you aware where your strengths lie. You will be provided with an Industrial Case Study and various other **case-studies** (e.g. problems, issues or scenarios) which you will work through, **in groups**, via a series of tutor-facilitated discussion workshops and self-study activities. Through these sessions you will explore how organisations work and gain an understanding of how to develop a novel idea to a developed concept you can sell to others. Part of being successful is knowing yourself, what

you are good at, what you enjoy doing and how you interact with others and so you will be expected to complete reflection sheets at the end of each workshop.

3. What will I get out of doing this module?

By successfully completing this module you will gain 10 credits towards your degree, but perhaps more importantly you will **gain an understanding of how to apply chemistry knowledge in a commercial environment** and the chance to learn some very valuable skills. Arguably the skills and competences you will develop are good indicators of high-quality graduates. They will include:

- Organisational and interpersonal skills
- Ability to improvise and problem solve
- Ability to reason critically and creatively
- Ability to adopt a more holistic (bigger picture) approach
- Public speaking and wider communication skills
- Ability to collaborate as a productive team member (including ability to practice empathy, appreciating the other person's point of view).
- Time management and effective Project Planning
- Efficiently retrieve information
- Through reflection identify own skills and weaknesses, and by doing so better target self-development priorities.

4. What is required from you?

You will be given a lot of freedom in this module to explore areas that interest you, however, there are some basic expectations associated with this course.

- Attendance and full participation in all the workshops
- Preparation (where necessary) for each workshop
- Act as a mature, responsible group member
- Work outside the timetabled classes, in particular in organising and contributing to meetings and work around the Industrial Case Study.
- Submission of the assessed coursework
- Work within a Student Managed Learning and Case Studies Approach (see below)

4.1. Student Managed Learning

Student managed learning is a way of teaching that has been developed to allow students to play a central and active role in their own learning. It is based on the premise that learning should be more than a passive transfer of information from a tutor to a student and that when faced with a real life issue taken from their area of study students should:

- Make their own evaluation of the information presented to them.
- Ask their own questions about the topic.
- Set their own (learning) targets to enable them to better understand the issue concerned and answer their questions.
- Manage their own learning as members of a co-operating group.
- Work together to produce some outcomes based upon consensus.

- Reflect upon the learning process in this context, and upon their learning.

4.2. Case Studies

Case studies allow factual information to be learned in a context that allows you to see the bigger picture. The use of case studies allows key skills to be developed as an integral part of a programme, rather than as a stand-alone element. By using examples provided by experts from industry, you will also gain an insight into industrial practices, albeit in a simplified format.

5. Module Structure

The module will be delivered by workshops and the learning gained by tackling the challenges set in various case studies, including the Industrial Case Study which forms a major part of this module.

5.1. Workshops

The module consists of six tutor-facilitated workshops as outlined in the table below

Week	Workshop (2 hr)
1	Introduction: Introduction to both to the module and how it will be taught as well as working in teams and looking at what makes a successful team
2	Useful Tools Project planning and SWOT analysis
3	Protecting your idea What are the ways to protect a good idea?
4	Marketing An introduction to marketing your idea/product
5	Scale-up and manufacture The main differences between doing something in the lab, and doing it on an industrial scale
6	-
7	-
8	-
9	Practise Project Pitch You will practise your Project Pitch to another group, reflection on how well it went, and evaluate another group's pitch and give feedback to them.
10	
11	Project Pitch Assessment

Five of these workshops are to provide you with useful tools, approaches and the time to develop relevant skills, all of which you will use in tackling the Industrial Case Study. The sixth workshop is to help you perfect your Project Pitch, one of the assessments on the module

5.2. Industrial Case Study

You will be given your Industrial Case Study at the end of the first workshop and this represents the major piece of work in this module. The case study is written to represent a challenge, such as you may be given when working for a company. Different groups may have different case studies, however each case can be divided into five sections, with each section containing questions to help direct your research and investigation. As a group you are expected to organise at least five sessions yourselves where you meet as a group to work on the case study (i.e. you will be working on your own as a group there will be no staff member to facilitate these meetings). You should take minutes of each of these meetings detailing the activities and outcomes of each session. Team roles should be rotated (for example, chair at the first meeting, taking notes in the second, act as researcher for the third etc) see section on 'How to minute meetings'.

The solution you develop will form the basis of your Project Pitch at the end of the module and the processes you go through to come to that solution should be collated and will be assessed as a Progress Log.

6. Assessment

There is no final examination associated with this module, all the marks come from three pieces of coursework: the Progress Log, the Project Pitch and Summary Reflection. The assessment of the Progress Log and Project Pitch will be staff marked as a team contribution i.e. all members of the team will get the same mark. However, that team mark will be modified by the PA Score (which is a reflection of your contribution to the group effort) to give an individual mark for each student. (See the Groupwork Section and Appendix 1 to see how the PA Score is derived).

6.1. Progress portfolio (Weighting 40%)

The Progress Portfolio should be a record of all of the work that your group has undertaken in arriving at the final presentation for the Project Pitch. The Progress Portfolio should include:

- Minutes from the meetings of each of the sessions
- Details of the technical, production, logistics and legislative aspects of your product.
- SWOT and PEST(LE) analyses in support of your idea/product.
- Any other documents that you produce in the making of your support material, for example reports brought back to meetings

The criteria against which the Progress Portfolio will be assessed are given in Appendix A. You will see the bulk of the marks will be given for content of the materials in the log, however, the portfolio should be collated in such a way that it is easy for someone who has not been involved in the project to follow and find out what has been done and so there are marks for a logical structure and a complete table of contents.

6.2. Project Pitch (Weighting 40%)

The Project Pitch is the culmination of your work on the Industrial Case Study. As a group you will be given 15 minutes to deliver your pitch to a panel of academic staff and representatives from industry. There will be additional time for the panel to ask questions. You will have the chance to practise your pitch in Workshop 6. General guidance on preparing a pitch is given in the 'Guidance: Project Pitch' section later on in the handbook. The assessment sheet the panel use, including an explanation of the marking criteria is given as an appendix at the end of the module handbook.

6.3. Summary Reflection (Weighting 20%)

Your Summary Reflection will be handed in individually. The reflection should be approximately 1000 words, summarising skills, knowledge and competencies developed during the module, reflecting and evaluating on your own progress and experiences.

When completing the summary:

- Try to analyse your experiences and say what you have learnt as a result of your participation on the module. Include your thoughts about your personal development, how organisations work as well as how you plan to build on what you have learnt from this experience in the future (i.e. Action Plan).
- What did you set out to get from the experience and have your expectations been met? How have you ensured that you made the best of the opportunity?
- If you had problems how did you resolve these? Does this tell you anything about how you will be able to cope in the future?

7. Guidance: The Progress Log

The record of the meetings your group has had form a substantial part of the progress log. Minute-taking is also an important employability skill and some tips and guidelines are given below.

7.1. How to minute meetings

Before a meeting, you should try to ensure that everyone is clear about the agenda (and objectives) for a meeting. Your team should agree on this each time. The items on the agenda should be numbered. The same numbering system should also be used in the minutes.

Minutes should be taken, detailing the activities and the outcomes of each session. It is almost impossible to record the meeting "word for word," therefore it is a very useful skill to be able to pick out the important points and record them in a way that other people will be able to understand. The minutes have two major purposes: to record the substantive issues discussed (especially those agreed/approved) in the meeting and to provide a "things to do" list for the group.

When writing minutes, there are a number of rules that you should follow. It is important to avoid ambiguity; use specific details and avoid vague phrases such as, “as soon as possible.” When referring to additional documents ensure that a full reference is recorded, to allow the document to be easily located in the future. Use short, concise sentences and use the past tense. Any abbreviations that are used should be written in full the first time that they are used in each document. If there are a lot of common abbreviations it may be useful to produce a separate sheet of these abbreviations.

Action points should be clearly noted. Each action should be assigned to one or more of the team member(s). This will act as a reminder for what each member needs to do before the next session. As soon as you receive minutes and again prior to a meeting, you should read over the minutes of the previous meeting to remind yourself of what was discussed and also to check that you have carried out your action points (if not, try to do them a.s.a.p. if possible/appropriate).

If you are the chairperson you should make sure that the group keeps to the agenda (i.e. maintain the group’s focus). If the conversation starts to wander interrupt at a suitable point and bring the discussion back to the agenda item under consideration. If appropriate, the conversation can either be restarted in the correct agenda item, or under “any other business” at the end of the meeting; this should help to ensure that you cover all the agenda items and also make it simpler for the secretary to minute the meeting in a structured way. It is useful to summarise the key points at the end of each agenda item, to ensure that all members agree on the conclusion of each discussion. Also, the secretary will know what to minute from the discussion. At the end of each agenda item, the chair should ask the group members if they have anything else that they wish to discuss under each agenda item, before moving on to the next item. The chair should also try to ensure that all group members have a say in discussions and that any one individual does not unduly dominate a discussion or the meeting as a whole.

Each session should have a chair and a secretary. There are five sessions in all, so each member of your team will have an opportunity to play each role. If you, as a group, feel that it is appropriate, you can split a session into two or more meetings, each with separate minutes. The chair should ensure that the team sticks to the agenda, and that all the agenda items are discussed (unless the team agree to dismiss or hold it over to the next meeting). The minutes from the meetings will form part of the final assessment portfolio. This will be used to assess the ability of the group to execute tasks in a logical and timely manner, and also assess the ability to carry out and follow up on any actions generated. Minute taking is a valuable skill and your ability to take accurate and comprehensive minutes (but not containing waffle) will be assessed. Any group or sub-group meetings that take place outside of the five scheduled workshops should also be appropriately minuted/recorded.

Remember, the minutes should:

- have a title;
- provide details such as: location, start time, end time, date, chair and secretary;
- list who was present and who was absent;
- confirm the previous minutes as being an accurate and fair record (or note changes approved);
- begin with matters arising from the minutes of the previous meeting;

- provide a record of progress made with each action point.
- provide an update on issues in minutes that are not going to be covered elsewhere in the agenda;
- provide a useful summary of the discussions that take place under each agenda item;
- list the decisions taken for future actions, who made the suggestions and show which individual(s) has/have been assigned to which tasks;
- give the date of the next meeting

Note, when a set of minutes have been finalised and approved they should be signed and dated by the Chair (of the meeting considering them) on behalf of the team/committee. It is this signed copy that needs to be put into the final group assessment portfolio.

The requirement to produce team meeting minutes can serve several functions:

- It helps to keep the project on schedule, by providing a record of where you are up to in your work.
- It illustrates an important formal procedure, which you will come across in many workplace situations.
- It provides training in producing an informative, concise record of the key issues at a meeting. This is a highly valuable skill.
- It provides a formal structure for meetings, which may help to make them more efficient.
- It illustrates the method and effort made by a team which might not be reflected otherwise in their results.
- It provides a record of individual contributions that can act as a useful aid to assessment when assigning individual marks to a team effort.

An example (fictitious) set of minutes is outlined below. You should ensure that you use a logical numbering system. It is often useful to set the minutes out in a table.

Staff-Student Committee Minutes

Applied Science Department

Monday 5th December 2012, 12:00 – 1:30pm

Present: AB (chair), CD (secretary), EF, AM, JK, SM.

1 Apologies

AH, MS

2 Previous minutes (meeting on Tuesday 4th October 2011)

The minutes of the previous meeting were approved and signed by the chair.

3 Matters arising from the Minutes of the Meeting Held on 11 October 2011

3.1 Re 4.1: Induction programme for new first years – reps from the science library and ISS have both agreed to participate next year, still awaiting confirmation from Royal Society of Science. (*Action: CD to chase up SM*).

3.2 Re 4.4: completed.

3.3 Re 4.6: completed.

3.4 Re 5.7: a response was Tabled and approved by the committee.

3.5 Re 6.8: confirmed.

3.6 Re 7.2: on going (*Action: AB*).

2 Safety

4.1 Fumehoods (LB)

An audit of work carried out in the laboratories, which requires the use of a fumehood should be drafted. This could be used to assess the needs of the researchers and their possible relocation in the department or the purchase of fume-cupboards. (*Action: LB*)

The results of the review of fume-cupboard space in the department should be discussed at the Departmental Meeting (*Action: CD to raise in staff meeting and AM to raise in Safety Committee meeting*)

4.2 Apparatus left unattended forms (EF and SM)

There are new forms that all staff and research students should now be using when apparatus / reactions are left unattended. These forms must be countersigned by the supervisor or nominated person. (*Action: CD to distribute forms and details of procedures to all concerned and include in postgraduate handbook*)

3 Modular course review, lectures, practicals and assessment

5.1 Lecture times (JK)

Some lecturers are over-running the timetabled lecture session. It would be appreciated if lecturers would keep to the timetabled slot. (*Action: JK raise at L & T meeting*)

5.2 Over Head Projector in MLT (JK)

This is partly broken and is likely to need replacing. *(Action: AM to raise in L&T meeting)*

5.3 ASCI3000 (JW)

Students would like a wider choice of projects *(Action: AB to raise in L&T meeting)*

5.4 ASCI2001 (CD)

This is a 10 credit practical module. The amount of material for this module requires reviewing *(Action: JK to review with practical sub-group committee)*

4 Postgraduate matters

6.1 Thesis/report feedback

It would be useful to students and supervisors if an approximate deadline for reviewing theses/reports was discussed when work is submitted to the supervisor for comment.

(Action: AB to raise in staff meeting)

If this idea is agreed, the matter should be included in the postgraduate handbook. *(Action: CD)*

5 Main Library Student User Group

7.1 CD as student rep

There has been a meeting already but CD was unaware of it taking place. *(Action: CD to contact library and follow up as necessary)*

AM queried if CD was also involved with issues relevant to the Science Library. This would be useful since many references relevant to the Applied Science Department are kept here.

(Action: CD)

6 Any Other Business

8.1 Deadlines related to ASCI2001 coursework were not maintained for the Applied Science students. *(Action: AB to raise in L&T meeting)*

8.2 Computers

Four new computers are now available in the common room for students to use.

There have been occasions when students have been told to leave Computer Clusters due to timetabled teaching sessions. A review of the use of Computer Clusters by students should be carried out *(Action: CD to see SM)*

8.3 Common Room

This area is welcomed by the students as a place to meet fellow members of the department. However, students are reminded to maintain this area tidy and rubbish free.

(Action: student reps to inform year groups)

7 Date of next meeting

5th March 2012

8. Guidance: The Project Pitch

The culmination of this module is a project pitch based on the results of your work developing the themes posed in your group's Industrial Case Study.

8.1. Presentations — general

Throughout this module, and no doubt at other times during your degree, you will have undertaken various activities where you had to communicate verbally with your friends, classmates and tutors. Many students find formal presentations nerve wracking and so try to avoid them. Although giving a formal presentation may seem daunting, they do become easier with practise and they do develop skills useful for future employment e.g. the ability to plan, develop and communicate a theme. When they go well they can be an excellent confidence booster. As with most things it is essential that you plan well before giving a presentation and that you are familiar with the material. Below are some tips

- Make sure you are clear about the purpose and length of the presentation and the target audience
- Research topic thoroughly and allow sufficient time for preparation of the presentation
- Make sure the presentation is ordered logically into introduction main body of information and concluding remarks or summary
- Check the facilities available; for example if you need a projector with computer make sure you have access to these
- Practise presentation by giving it several times to an empty room or to friends; and them to listen and could teak the content and delivery
- Make sure you maintain eye contact with your audience: never turn your back on them to deliver the presentation to the projector screen (a frequent mistake made by people who are nervous)
- Make sure your audience can hear you by speaking clearly and sufficiently loudly (in a large room a good tip is simply it ask people at the back if you can be heard)
- Deliver at a pace that is not too fast and not too slow (if you have rehearsed with an audience of friends and then they should have advised you on this). There is a temptation when nervous to speak too rapidly — if you have rehearsed well you should be able to overcome your nerves
- Never read out your presentation to your audience: this appears monotonous and reduces lack of eye contact (i.e. it stifles interaction with your audience)
- Make sure you know how to pronounce scientific terms before the presentation — this will add to your confidence
- When using PowerPoint slides, take advice from your tutor on font size and display options — do not be tempted wow your audience with your technical abilities at the expense of the actual content. Do not display too much information and never read from the slides, use them as a prompt only — the slides should complement the content of your talk
- At the end of the presentation thank your audience and asked them if they have any questions: thorough preparation should mean you are able to answer them.

[List taken from: Verran and Dawson (2011)]

8.2. A Presentation vs A Pitch

Most of the verbal presentations you do at university will be about articulating what you know/have found out. The project pitch has an added dimension — you, along with your group, will have to try and convince the panel that your idea is the best way forward, there's an element of persuasion. To be persuaded the panel needs to trust what you say and be convinced you have an excellent idea/product. Essentially it's about highlighting your Unique Selling Propositions (USPs) and convincing your audience that the USPs are unique. Below is a URL to a YouTube video which shows a successful pitch.

<http://www.youtube.com/watch?v=oa3zPPs3k60>

There are a number of aspects that you can see from this video. Firstly it helps enormously if you have a good idea, secondly the actual pitch was not all a long, just a few minutes. Yet in those few minutes Amanda was able to convey clear messages such as the nature and extent of the problem, why this idea is a superior solution and who would purchase it. Amanda and James presented a professional image, dressed smartly; spoke clearly and with confidence, and the support material was simple, yet informative, with a polished look. There was no confusion or argument who answered the questions, both Amanda and James knew their areas of expertise.

8.3. General guidelines and pointers

- Firstly don't panic — the panel are there to see the extent to your knowledge not to trip you up or make you look bad.
- Don't get bogged down in the detail, the pitch needs to be a broad brush — the questions will provide an opportunity for you to expand on areas
- Don't limit yourself to just PowerPoint, you can use posters, models, mock-ups, demos etc to support your idea
- If you use PowerPoint then average two to three slides per person (max 15 slides). You only have 15 minutes but the areas to cover are:
 - clear and coherent support information
 - who you are (background)
 - what is the problem / improvement required?
 - what is the solution?
 - what are your strengths, i.e. your Unique Selling Points?
 - where is your market?
 - what is your product / application worth?
 - what is your marketing strategy?

9. Guidance: Self Reflection

As part of this module you will be expected to fill in self reflection sheets after each workshop session. Self reflection has a variety of meanings — in this context we are using it to mean spending time to think about a workshop activity you have just undertaken and in doing so consider aspects such as how you performed and what you may wish to do to improve in the future. You may have some reservations or fears over this. It may seem very alien to you — this is not something Chemists do. Well, Historians tend not to produce posters of their research, that is not to say posters are not a good way to summarise findings. It may seem a

chore or a waste of time. You might not know where to start. Search the Internet for Self Reflection and you'll quickly find grandiose claims of how self reflection can transform your life, ask around most chemistry departments and you may well find someone who believes reflection is a waste of time. The truth probably lies somewhere in the middle. A token or superficial amount of time spent reflecting is unlikely to yield any benefits, equally there are limits to what self reflection alone can do. However, reflection on performance in an integral part of teacher training or part of many Professional Qualifications. Even if you feel you have quite a bit of insight into yourself you can build on this knowledge and enhance your chances of success. Learning to communicate about your personal qualities, attributes and achievements in a way others can understand is a prerequisite for achieving your goals in academic study, employment and other areas of life.

One of the best ways to start is to use a record sheet to write down your reflections. Here are some basic facts

- Most people do not review effectively in a vacuum
- Details are often forgotten if not written down
- The human brain can be selective and remember only the good bits or the superficial items
- Writing your reflections down creates the time and space for you to think things through properly.
- Once something is written it is easier to share and bounce your ideas and reflections off other people: teachers, friends, yourself.
- Written thoughts and reflections can be drawn upon to write CVs, letters of application and the like — it gives you something to start with.

Once written, the 5 end-of-workshop reflections are there for you to use to write your Summary Reflection. The end-of-workshop reflections themselves will not be graded.

10. Group work

The majority of work you do in this module will be done as part of a group. This is for a number of reasons; not least the only way to learn to work as part of the team (a key skill for employers) is to work as part of a group or team. Also when they work well, teams achieve results greater than the sum of the individuals. (You will learn more about teams and team roles in the first workshop).

10.1. Calculating each Individual Contribution to Group Work

To try and best reflect every individual's contribution to the team effort, the group mark for the Progress Log and Project Pitch will be multiplied by a Peer Assessment Factor so that each student will get an individual mark for the coursework.

Individual student's mark = Student's PA Score × Group mark

To calculate the PA Scores at the end of the module you'll be asked to score yourself and your colleagues' efforts using the criteria in the table below. (A worked example of how the numbers are used to calculate each PA Score is given in Appendix E).

Table 1 Group work: evaluating the contribution from each group member

(For each criterion marks are awarded as follows: 3 for 'better than most of the group in this respect', 2 for 'about average for this group in this respect', 1 for 'not as good as most of the group in this respect', 0 for 'no help at all in this respect' and -1 for 'a hindrance to the group in this respect')

Write the names of the other group members in the blank boxes on this row:	You				
Level of enthusiasm/participation					
Suggesting ideas					
Understanding what was required					
Helping the group to function well as a team					
Organising the group and ensuring things got done					
Performing tasks efficiently					

You will see that the criteria focus on a range of activities that help a team work effectively. This table should be used to genuinely reflect the range of contributions within a working team. Obviously a score of -1 can and should be given where deserved, however, for someone who has seriously hindered the function of the team, such as by persistent absence or obstructive behaviour (and so deserves a string of -1s) then this table should not be the first indication of that behaviour. That is, the team should use the yellow/ red card system (described below) as soon as possible to highlight his or her lack of contribution to the module.

10.2. What if something goes wrong? Yellow and red cards

For teams to work, everyone has to do their bit and there is always the fear that someone will not pull their weight or even not contribute at all. This occasionally happens so there is a mechanism in place to highlight this. If a team member is not pulling his or her weight the **rest of the team** can approach the tutor and ask for a yellow card to be awarded to that person. This alerts the tutor to the situation and allows him or her to take appropriate action. The team can subsequently remove the yellow card if the errant member improves. If the member's attitude or behaviour remains poor or deteriorates he or she can be awarded a red card with the risk of having marks reduced by the tutor.

11. Workshop 6: Practise Project Pitch

As the workshop title suggests in this session you will get the opportunity to practise your project pitch and obviously you will need to prepare that beforehand. You will also be asked to critically evaluate another group's pitch and feedback your thoughts. This may seem a little daunting at first but it has a lot of benefits. Firstly, critical evaluation is a skill required in most graduate-level jobs, more immediately it gives you a chance to use the same criteria by which you will be assessed when you present the group Project Pitch for 'real'. Evaluating another group should give you some valuable insights into the process and allow you to improve your pitch accordingly. However, giving feedback, especially verbally, is not always easy, to do it effectively you need to know what constitutes good feedback. Therefore, before you attend Workshop 6 you need to have read and understand the short introduction to feedback, its purpose and some pitfalls to avoid outlined in the next few paragraphs.

11.1. What is Feedback?

Feedback is an essential part of the learning process. At its simplest feedback is when you receive comments on your work about how well you did. Over the course of your studies you will receive lots of comments mostly from your lecturers/tutors but also demonstrators and, as in this case, fellow students. Chances are you have had less opportunity to give feedback. Probably the easiest way to view feedback is as good advice. At its best feedback is a dialogue between the one giving the feedback and the one receiving the advice. For feedback to work well there are responsibilities on both parties.

11.2. Receiving feedback

To get the most out of feedback you need to be receptive to it (Race 2008). That might sound obvious but it is easy to be knocked off course. Giving or receiving feedback is not like inputting data into a computer, in such a situation only the information matters the computer does not care whether you typed in the data carefully and gently, or angrily banged the keys, it just deals with information. Humans are different, we have feelings and those feelings can influence how we process information such as feedback. Here are a couple of simple examples. If you hand in an essay and it is returned with a mark which is less than you wanted it is easy to feel defeated, pessimistic or defensive. You may say to yourself "I'm just no good at writing essays". Such comments may be understandable but they belie a very defeatist attitude and not one that helps you build and go further. Your feelings have come in and clouded your ability to accept advice. To prevent this you need to take a step back, feedback is about your **performance** and to relates to a **particular piece of work**, not your worth as a person. It is a rare person indeed who gets everything right first time and could not improve with practise. Yes, some people are better at writing essays and others, but all can improve with practise. If necessary give yourself some time and return to the feedback at a later date when you can be more objective.

If you obtain a mark that is better than you expected then there is a danger you feel smug or rest on your laurels. Some people find it difficult to handle praise and inclined to play down the compliment "Oh it's not that good". Say that often enough and you will believe it, and in doing so distort your understanding of the true value of your work.

In this session you will be given feedback 'live' and if you receive feedback this way then it is good advice take detailed notes. The human memory can be very selective, you may

receive an equal number of positive and negative comments and after a while you remember more of the negative ones, by taking notes you help maintain the balance.

11.3. Giving feedback

Given what has just been said about being receptive to feedback and how feelings may influence how people process information, then when giving feedback you need to be mindful of other people's feelings, this is especially true when giving feedback face-to-face. For feedback to be useful there are certain basic requirements, firstly it needs to be given at a time when people can make use of it. Ideally it should **feed forward**, i.e. advice that people can use in a subsequent task. Also it has to be understandable, so if you are writing feedback then your handwriting needs to be legible, if you are discussing feedback then you need to be using words that everybody understands.

When giving verbal feedback the choice of words is important. Sometimes difficult things need to be addressed, you are doing the other person a disservice if you shy away from this and do not give them the feedback they need. However, you do not want them to become defensive or the session to degenerate into an argument as in such circumstances the advice is not taken on board. A comment such as "Why on earth did you ...?" immediately puts people on the defensive. An opening to the issue is much better phrased as "Can you tell me why you did ... that way?"

To help you in giving your feedback you will be asked to give your advice to the other group in the form of continue, start and stop (see Appendix J: Feedback Sheet). So you will be expected to suggest to the other group something that they should continue to do i.e. you have identified something that they do well. You will also be asked to suggest something that they ought to start doing i.e. you suggest an improvement to what they did. This improvement may be adding something or suggesting an alternative way of doing something. Finally you be asked to suggest something they ought to stop doing i.e. to remove a negative aspect from the presentation.

12. Contact details

Module Manager:

13. Acknowledgements

This module was made possible through funding from The Royal Society of Chemistry

The original handbook was written by Dr Stephen Maw, University of Leeds. He would like to thank Dr Graham Scott (University of Hull) for his discussions on Student Managed Learning and Dr Carys Watts (Newcastle University) and Anne Tierney (University of Glasgow) for their help with advice and criteria for the Project Pitch. Thanks should also go to Drs Samantha Pugh and Kelvin Tapley for sharing the information they developed for the Clearwater Enterprise Case Study — a forerunner to this module.

References

Lejk, M., Wyvill, M. and Farrow, S. (1996). A survey of methods for deriving individual grades from group assessments. *Assessment and Evaluation in Higher Education*, **21**(3), 267–280

Race, P. (2008) Building on Feedback. Available from <http://phil-race.co.uk/students/>

Verran, J. and Dawson, M. (2011) Communication in the bioscience. In *Effective learning in the life sciences* ed David J. Adams. Oxford: Wiley-Blackwell

14. Appendices

14.1. Appendix A: Progress Log Assessment Sheet

Group members	
Project Title	
Module	CHEM2600 Chemistry: Idea to Market

CONTENT	V. Poor	Poor	OK	Good	Excellent
Breadth of sources of information reviewed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Full and accurate minutes kept	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Observations noted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Addressing project requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity of materials produced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Completeness of information presented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Academic level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evidence of creative and innovative thinking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard of individual activity logs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate record of literature/sources of information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRUCTURE AND PRESENTATION					
General layout and structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Table of contents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Logical approach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Any Further Comments</u>					

Overall Grade/Mark for the Progress Log

14.2. Appendix B: Project Pitch Assessment Sheet

Group members

Project Title

Module CHEM2600 Chemistry: Idea to Market

Please give a score from **1** (poor) to **5** (excellent) for each of the following criteria. Further explanation of the criteria is given overleaf.

Criteria	Comments	Mark/5
Quality of presentation and delivery		
Teamwork		
Extent of Idea development within the target market		
Quality of supporting material		
Timing		
Professionalism		
Ability to answer questions		

Overall Mark/Grade for the Pitch

Suggestions to improve the idea/ Questions to ask

Guidance on the considerations for each criterion

Quality of presentation and delivery

The presentation is delivered clearly and at an appropriate pace. Was the delivery pitched as to be understandable to a chemist but not necessarily a specialist in field? If PowerPoint is used then the number of slides is appropriate and each slide is clear and necessary. The overall coverage is good with sensible breakdown of the different areas?

Teamwork

Evidence of genuine group participation (and contribution) in the preparation and delivery.

Extent of Idea development within the target market

The idea is basically a sound one and developed accordingly. SWOT and/or PEST(LE) have been performed. There is a clear target audience and the product is suitable for that audience

Quality of supporting material

Are any handouts, leaflets, models, posters, local mock-ups appropriate and helpful in delivering the message? If there are no supporting materials and this does not detract from the message then leave the mark blank. If there are no supporting materials but such materials would have clearly helped then score 1

Timing

Did the delivery keep to the allotted time and was the time given to each section fitting?

Professionalism

Did the appearance, conduct and demeanour of the group come together to convey the image of a team who would deliver and in whose advice you could trust?

Ability to answer questions

Were the questions answered accurately and concisely? Were the students aware and willing to admit the limitations of their knowledge, perhaps with justifiable reasons?

14.3. Appendix C: Summary Reflection Assessment Sheet

Name
Project Title
Module CHEM2600 Chemistry: Idea to Market

Criteria	Marks awarded
<p>Reflection on Self and Personal Development (45%) Consideration of personal experiences (e.g. group activities, minuting meetings), developing materials, development of skills, increase in self-awareness, achievement of objectives, own contribution to team...</p>	
Evidence of in-depth critical analysis and making connections to a variety of areas (e.g. to future plans for learning or career) and strongly supported by log extracts (well referenced)	5
Evidence of making meaning of a number of issues and making connections between them and supported by log extracts (well referenced)	4
Evidence of descriptive writing about a variety of incidents/experiences and supported by log	3
Evidence that experiences have been captured in a limited way	2
Lack of reflection on self and personal development	0–1
<p>Reflection on Business and Organisations (45%) Consideration of the increase in your knowledge about e.g. businesses and how they run, their culture, health and safety, external regulation, marketing, product development....</p>	
Evidence of in-depth critical analysis and making connections to a variety of areas (e.g. to future plans for learning or career) and strongly supported by log extracts (well referenced)	5
Evidence of making meaning of a number of issues and making connections between them and supported by log extracts (well referenced)	4
Evidence of descriptive writing about a variety of incidents/experiences	3
Evidence that experiences have been captured in a limited way	2
Lack of reflection on schools and organisation of teaching	0–1

Presentation (10%)	
Excellent presentation, all sections clearly ordered and cohesive, demonstrates clear planning and attention to detail	5
Clearly structured and presented	3–4
Basic structure and presentation	2
Poorly presented, lack of attention to detail hinders understanding of writing	0–1

Mark or Grade

Comments:

14.4. Appendix D: Group work: Evaluating the contribution from each group member (Student Sheet)

Please complete the table below assigning a value for each criterion for each person using the guidance below. The figures you give will be used to calculate the Peer Assessment Factor as outlined in the Module Handbook

Write the names of the other group members in the blank boxes on this row:	You				
Level of enthusiasm/participation					
Suggesting ideas					
Understanding what was required					
Helping the group to function well as a team					
Organising the group and ensuring things got done					
Performing tasks efficiently					

For each criterion marks are awarded as follows:

3 for 'better than most of the group in this respect'

2 for 'about average for this group in this respect'

1 for 'not as good as most of the group in this respect'

0 for 'no help at all in this respect'

-1 for 'a hindrance to the group in this respect'

14.5. Appendix E: Details of how the Peer Assessment Score is calculated

The calculation is based around the allocation of a group mark for the work produced by the group (in this case for the Project Pitch) and the manipulation of this group mark to derive a mark for each individual within the group. The formula adopted is as follows

Equation 1: Individual student's mark = Student's PA score × Group mark

where PA stands for Peer Assessment.

The PA score is obtained by asking students to assess each other's contributions via a peer assessment form. Each individual's scores are then added up to give an individual PA total. This is then divided by the average PA total for the group to give the individual's PA Score.

$$\text{Equation 2: PA Score} = \frac{\text{Individual PA Total}}{\text{Average PA Total}}$$

The PA Score reflects the individual's effort in comparison with the other members of the group.

A worked example

Three students, Angela, Julie and Thomas, worked in a group and received a group mark of 60%. The PA self-assessment results are summarised below:

In a Row 2 of the table A= Angela, J = Julie and T = Thomas

Marks awarded to: Marks awarded by:	Angela			Julie			Thomas		
	A	J	T	A	J	T	A	J	T
Level of enthusiasm participation	2	3	2	1	1	1	2	2	2
Suggesting ideas	2	3	1	1	1	2	2	2	2
Understanding what was required	2	2	2	0	2	1	2	2	3
Helping the group to function well as a team	2	1	2	1	1	2	1	2	2
Organising the group and ensuring things got done	2	3	3	1	1	1	2	2	2
Performing tasks efficiently	2	3	2	1	2	1	2	2	2
Totals	39			21			36		

Average PA Score equals $(39 + 21 + 36) / 3 = 32$

Applying Equation 2 for each student reflects each individual's effort in comparison to the rest of the group. A PA score >1 is above average, <1 is below average

Angela's PA score = $39/32 = 1.22$

Julie's PA score = $21/32 = 0.66$

Thomas' PA score = $36/32 = 1.13$

Applying Equation 1 is the final step which adjusts the group mark by the student's PA Score:

Angela: $1.22 \times 60\% = 73.2\%$

Julie: $0.66 \times 60\% = 39.6\%$

Thomas $1.13 \times 60\% = 67.8$

[taken from Lejk *et al.*, (1996)]

14.6. Appendix F: Declaration of Academic Integrity Form

CHEM2600 Chemistry: Idea to Market

Declaration of Academic Integrity

Date of submission

We declare that in the work submitted in this folder, we have not presented or attempted to present anyone else's work as our own, except where we have explicitly so indicated by the inclusion of references. We understand that to do so would mean that we had committed plagiarism, as defined by the University of Leeds.

We confirm our consent to the University of Leeds copying and distributing any or all of our work in any form and using third parties (who may be based outside the EU) to monitor breaches of regulations, to verify whether this work contains plagiarised material and for quality assurance purposes.

We are aware of the penalties imposed for the late submission of coursework.

To be signed by each of the team members:

1. Name: Signed.....

2. Name: Signed.....

3. Name: Signed.....

4. Name: Signed.....

5. Name: Signed.....

14.7. Appendix G: Self Reflection Sheet

This document will not be assessed, but if properly completed it will help you write for Summary Reflection at the end of the module.

Key skills that I have used during this exercise:
New key skills I have developed during this exercise:
My own strengths:
Skills that I need to develop further:
My contribution to the team effort:

14.8. Appendix H: Skills Audit

Unique id:

Please complete this audit on your own. Try not to over analyse but give your immediate feeling how experience you feel are in these areas, how able you are (i.e. how well you perform these tasks) and how confident you feel when doing these activities.

Skill	Score (1 to 5)*			Comments
	Experience	Ability	Confidence	
Teamwork				
Communication				
Oral Presentation				
Project Planning				
Time Management				
Finding Information				

* Score where 1 = little or no experience/ability or confidence in this area; 5 = extensive experience, very able or very confident

14.9. Appendix I: Self Reflection Sheet – Practise Project Pitch

This is an activity to capture your thoughts immediately after delivering your Project Pitch. It will help you (and your group) identify things you want to continue doing and areas you may wish to change.

What went well and/or better than expected?

What didn't go well or could have gone better?

What action(s) must I take before presenting the pitch for 'real'?

14.10. Appendix J: Feedback Sheet – Practise Project Pitch

This sheet and is to help you record the feedback you are going to give to the other group.

Continue

An aspect of the presentation was good and you wish to encourage the other group to continue doing

Start

An aspect of the presentation missing that needs to be added, or something that could be done in a better way (describe that better way)

Stop

An aspect of the presentation that it would be better if it were not repeated