Course Handbook

2016 - 2017

- Chemistry (USA/Industry/EU)
- Chemistry with Forensic Science (USA/Industry/EU)
- Pharmaceutical Chemistry (Industry)
Table of Contents

Calendar 2016 - 2017..................................................................................................................................................5
Welcome back from the Head of Department...........................................................................................................6
Introduction............................................................................................................................................................6
Department Details ....................................................................................................................................................7
  Research in the Department of Chemistry.............................................................................................................7
  Departmental Communications ..............................................................................................................................8
  Staff List and Key Contacts ..................................................................................................................................8
  Staff Directory.......................................................................................................................................................9
Student Communications and Personal Details .......................................................................................................11
Information on the Web...........................................................................................................................................11
Department Facilities .............................................................................................................................................11
Learn at Leicester ...................................................................................................................................................13
  University Library...................................................................................................................................................13
  IT Services ............................................................................................................................................................13
  Student Learning Development ...........................................................................................................................14
  Students’ Union Education Unit (ED) ..................................................................................................................14
Learn a New Language with Languages at Leicester .............................................................................................14
Other University Facilities.......................................................................................................................................15
University Regulations ............................................................................................................................................15
  Student Responsibilities .........................................................................................................................................16
  Attendance and Engagement Requirements .........................................................................................................16
  Neglect of Academic Obligations ........................................................................................................................16
  Examination Regulations .......................................................................................................................................17
Course details ..........................................................................................................................................................18
  Degree Programmes ............................................................................................................................................18
  Programme and Module Specifications ................................................................................................................19
  ERASMUS Exchanges, Years Abroad, Industrial Placements ...............................................................................19
  Attendance Requirements .....................................................................................................................................19
  Teaching Timetable ...............................................................................................................................................20
  Lectures ................................................................................................................................................................20
  Tutorials ................................................................................................................................................................21
  Coursework Submission ........................................................................................................................................21
  Change of Course/Module ...................................................................................................................................21
Marking and Assessment Practices ........................................................................................................................22
  Feedback and the Return of Work from Staff .......................................................................................................22
  Progression and Classification of Awards ...........................................................................................................23
Progression to Level 3 for the Chemistry Degrees ........................................................................................................ 23
Referencing and Academic Integrity .............................................................................................................................. 24
  What we mean by ‘plagiarism’, ‘self-plagiarism’ and ‘collusion’ .................................................................................. 24
  Resources and advice to help you study with integrity and avoid committing plagiarism .................................... 24
  Referencing style ......................................................................................................................................................... 25
Mitigating Circumstances .................................................................................................................................................. 25
Personal Support for Students .......................................................................................................................................... 26
  Departmental Student Support Arrangements ............................................................................................................... 26
Equal Opportunities ......................................................................................................................................................... 26
Athena SWAN .............................................................................................................................................................. 27
University Student Support Arrangements .................................................................................................................... 27
  AccessAbility Centre ................................................................................................................................................... 27
  Student Welfare Centre ............................................................................................................................................... 28
  Health Care and Registering with a Doctor .................................................................................................................. 29
Careers and Skills Development ..................................................................................................................................... 30
  Career Development Service ........................................................................................................................................ 30
Feedback from Students .................................................................................................................................................. 31
  Student Feedback Questionnaires ................................................................................................................................ 31
  Student Staff Committees ............................................................................................................................................ 33
Departmental Prizes ......................................................................................................................................................... 34
Societies ........................................................................................................................................................................... 34
Safety and Security ......................................................................................................................................................... 34
  Problem Classes and Laboratory Information .................................................................................................................. 34
Personal Belongings ......................................................................................................................................................... 36
Complaints and Academic Appeals Procedures ........................................................................................................... 37
Personal Tutors .............................................................................................................................................................. 37
  Student Skills Record/Personal Development Planning ............................................................................................ 37
The Weighting of Modules for your Degree .................................................................................................................... 38
  Module Assessment ...................................................................................................................................................... 39
Examinations .................................................................................................................................................................... 39
  Finding out your exam marks ....................................................................................................................................... 39
Calculators ........................................................................................................................................................................ 39
Anonymity ........................................................................................................................................................................ 39
Course Transcript ............................................................................................................................................................ 39
Private Study and Vacations .......................................................................................................................................... 40
Assessment Deadlines ..................................................................................................................................................... 40
Level 2 Modules for Each Degree .................................................................................................................................. 41
### LEVEL 2 MODULES

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH2005</td>
<td>Bifunctional Molecules</td>
<td>43</td>
</tr>
<tr>
<td>CH2006</td>
<td>Organometallic Chemistry</td>
<td>44</td>
</tr>
<tr>
<td>CH2007</td>
<td>Physical Chemistry of Colloids</td>
<td>45</td>
</tr>
<tr>
<td>CH2009</td>
<td>Chemistry of Rings</td>
<td>46</td>
</tr>
<tr>
<td>CH2010</td>
<td>Molecular Spectroscopy</td>
<td>47</td>
</tr>
<tr>
<td>CH2011</td>
<td>Kinetics and Mechanism</td>
<td>48</td>
</tr>
<tr>
<td>CH2013</td>
<td>Science Communication and Career Skills</td>
<td>49</td>
</tr>
<tr>
<td>CH2021</td>
<td>Polymer Chemistry</td>
<td>50</td>
</tr>
<tr>
<td>CH2023</td>
<td>Materials Science</td>
<td>51</td>
</tr>
<tr>
<td>CH2040</td>
<td>Introduction to Analytical Chemistry</td>
<td>52</td>
</tr>
<tr>
<td>CH2041</td>
<td>Bioanalytical Chemistry</td>
<td>53</td>
</tr>
<tr>
<td>CH2071/73</td>
<td>Chemistry Practical – Part A and Part A</td>
<td>54</td>
</tr>
<tr>
<td>CH2072/74</td>
<td>Chemistry Practical – Part B and Part B</td>
<td>55</td>
</tr>
</tbody>
</table>
Calendar 2016 - 2017

Semester 1: 26 September – 20 January 2017

September
- Monday 26th WEEK 1 Autumn Term & 1st Semester begins

October
- Monday 3rd WEEK 2
- Monday 10th WEEK 3
- Monday 17th WEEK 4
- Monday 24th WEEK 5
- Monday 31st WEEK 6

November
- Monday 7th WEEK 7
- Monday 14th WEEK 8
- Monday 21st WEEK 9
- Monday 28th WEEK 10

December
- Monday 5th WEEK 11 Autumn Term ends Friday 9th December

CHRISTMAS VACATION (4 weeks)

January
- Monday 9th WEEK 12 Spring Term and Exams begin
- Monday 16th WEEK 13 Exams end Friday 20th January

Semester 2: 23 January 2017 – 23 June 2017

January
- Monday 23rd WEEK 14 Semester 2 begins
- Monday 30th WEEK 15

February
- Monday 6th WEEK 16
- Monday 13th WEEK 17
- Monday 20th WEEK 18
- Monday 27th WEEK 19

March
- Monday 6th WEEK 20
- Monday 13th WEEK 21
- Monday 20th WEEK 22 Spring Term ends Friday 24th March

EASTER VACATION (5 weeks)

May
- Monday 1st WEEK 23 Summer Term begins*
- Monday 8th WEEK 24 Revision Week
- Monday 15th WEEK 25 Exams begin Monday 15th May
- Monday 22nd WEEK 26
- Monday 29th WEEK 27 Exams end Friday 2nd June

June
- Monday 5th WEEK 28
- Monday 12th WEEK 29
- Monday 19th WEEK 30 Summer Term ends Friday 23rd June

August/September
- Monday 4th Resit Exams begin Monday 4th September
- Resit Exams end Saturday 9th September

[For those students who did not pass their modules and have to resit/sit the failed modules in September]

TERM DATES AT A GLANCE

Autumn Term: 26 September 2016 – 9 December 2016

Spring Term: 9 January 2017 – 24 March 2017

Summer Term: 1 May 2017* – 23 June 2017

* Summer term officially starts on Bank Holiday Monday, teaching starts on the Tuesday following the Bank Holiday
Welcome back from the Head of Department

Welcome back!

We hope you had an enjoyable summer and that you are now eager to press on with your studies. Now that you have consolidated the fundamentals at level one, you can look forward to a really interesting year of more advanced chemical topics. Do be warned, however, that the step up in difficulty from level 1 to level 2 is substantial and so it is vital that you maintain full attendance and meet all deadlines. You must also plan your time carefully so that you have plenty of time for private study and for completing assignments. It is this diligence and planning, more than anything else, that determines success in level 2.

If you did well in level 1, then many congratulations. However, you should not rest on your laurels. In particular, you will no doubt be aware that the scores you obtain in assignments and in exams in level 2 now count towards your degree classification. If you were a little disappointed with your performance last year, then now is the opportunity to put that right. I have known many students in the past who had a disappointing year 1 and who turned it around to make a real success of year 2.

Much of the general material in this level 2 handbook is identical to that in the level 1 handbook. However, I would encourage you to read through it carefully to remind yourself of what is expected of you and what support is available, both within the department and across the university. Of course the handbook also provides details about the various modules available in level 2. I do also want to emphasise that the staff within the department are here to help and you should never be reticent in asking any of us for advice and assistance. It is in our interest, as well as yours, that you succeed and that you enjoy the course.

Good luck for the new academic year!

Professor Andrew M. Ellis
Head of Department

Introduction

This handbook has been written to provide information to all our undergraduate students. It aims not only to explain the workings of the Department but also to provide information that you will require throughout your degree programme. Its contents will:

- outline the structure and organisation of the Department;
- advise on study skills and written work;
- explain our teaching and assessment methods;
- outline our programme structures and module content;
- advise on the aims and objectives of each degree programme;
- offer information on support services for students.

Further information will be provided for you at appropriate times during your studies. In the meantime, we would be pleased to receive your suggestions and ideas for topics that might be included in this handbook in future by e-mail to chemadmin@le.ac.uk
Department Details

The Department of Chemistry at the University of Leicester is recognised both internationally for its research and its excellence in teaching. We have invested in modern, state-of-the-art facilities for carrying out agenda setting research and for the provision of high quality undergraduate teaching.

With substantial funding for industrial and government sponsored research, our research interests are multidisciplinary, focussing on diverse topics such as biological chemistry, green chemistry, atmospheric chemistry and laser spectroscopy.

This research ranges from fundamental cutting-edge work on bio-inspired nanomaterials to global studies of chemicals and their effect on climate change. Recent research work has led to the formation of "spin-out" companies and three purpose built demonstrator units to display our technology to industry.

The Department is a friendly and supportive environment in which to both study and carry out research and consistently we have been rated very highly in the National Student Satisfaction Survey (95% overall satisfaction in the 2016 survey).

We offer a range of three and four year courses that reflect the modern needs for chemistry in industry and society and all BSc and MChem Chemistry degree programmes have full accreditation from the Royal Society of Chemistry.

What sets us apart from other departments is our dedication to providing student-focussed, multi-media learning methods to ensure high quality modern teaching. The result is that our graduates are equipped with both the specialist chemistry knowledge and a host of important transferable skills highly valued by employers.

Research in the Department of Chemistry

The academic and teaching staff of the Department are researchers as well as teachers. In addition to teaching the discipline of Chemistry to students at the undergraduate and postgraduate levels, they actively contribute to the development and dissemination of new ideas in Chemistry.

The close relationship between teaching and research is one of the great advantages of studying at University. You will come into contact with staff who are actively engaged in the subject – not just teaching it as a fixed body of knowledge.

Members of the Department of Chemistry at Leicester are active in many different research areas. With substantial funding from government and industrial sponsors, our research interests are multidisciplinary and diverse, which enables the Department to offer a wide choice of topics for undergraduate research projects.

Full details can be found at: http://www2.le.ac.uk/departments/chemistry/research
Departmental Communications

Staff List and Key Contacts

As well as administrative staff and your personal tutor you may need to contact other staff members if you have a specific query. Please e-mail them at the below e-mail address with your query or to book an appointment with them.

<table>
<thead>
<tr>
<th>Head of Department (HoD)</th>
<th>Prof. Andrew Ellis</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Programme Co-ordinators and Tutors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry (USA/Ind/EU)</td>
</tr>
<tr>
<td>Chemistry with Forensic Science (USA/Ind/EU)</td>
</tr>
<tr>
<td>Pharmaceutical Chemistry (Ind)</td>
</tr>
<tr>
<td>Erasmus Co-ordinator</td>
</tr>
<tr>
<td>Level 1</td>
</tr>
<tr>
<td>Level 2</td>
</tr>
<tr>
<td>Level 3</td>
</tr>
<tr>
<td>Level 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Officers &amp; Tutors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Careers Tutor &amp; Personal Development Plan Co-ordinator</td>
</tr>
<tr>
<td>Special Needs Tutor (AccessAbility)</td>
</tr>
<tr>
<td>Director of MSc Postgraduate Admissions</td>
</tr>
<tr>
<td>Senior Tutor</td>
</tr>
<tr>
<td>Head of Teaching</td>
</tr>
<tr>
<td>Postgraduate Tutor</td>
</tr>
<tr>
<td>Admissions Officer</td>
</tr>
<tr>
<td>Examinations Officer</td>
</tr>
<tr>
<td>Department Safety Officer</td>
</tr>
<tr>
<td>Building Safety Supervisor/Technical Manager</td>
</tr>
<tr>
<td>Plagiarism Officer</td>
</tr>
<tr>
<td>Outreach Officer</td>
</tr>
<tr>
<td>Library Liaison Officer</td>
</tr>
<tr>
<td>Athena SWAN</td>
</tr>
</tbody>
</table>
Administrative Staff

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration Manager</td>
<td>Claire Cartwright</td>
</tr>
<tr>
<td>Programme Administrator</td>
<td>Zahira Ahmed</td>
</tr>
<tr>
<td>Programme Administrator</td>
<td>Caroline Bilson</td>
</tr>
<tr>
<td>Programme Administrator</td>
<td>Vicky Robbins</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td>Gigi Law</td>
</tr>
</tbody>
</table>

Staff Directory

Day-to-day queries should be sent to chemadmin@le.ac.uk. We would recommend using this e-mail address to ensure you receive the most efficient response. If you need to contact a member of staff individually please see the contact list below. You can also find up-to-date contact details on the Department’s website: www.le.ac.uk/departments/chemistry/people

<table>
<thead>
<tr>
<th>Name</th>
<th>Room Number</th>
<th>Phone Number</th>
<th>E-mail Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof. Andrew ABBOTT</td>
<td>MC 021</td>
<td>2087</td>
<td><a href="mailto:apa1@le.ac.uk">apa1@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Steve BALL</td>
<td>1.12</td>
<td>2139</td>
<td><a href="mailto:sb263@le.ac.uk">sb263@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Richard BLACKBURN</td>
<td>2.11</td>
<td>2093</td>
<td><a href="mailto:rb436@le.ac.uk">rb436@le.ac.uk</a></td>
</tr>
<tr>
<td>Prof. Paul CULLIS</td>
<td>0.13</td>
<td>2130</td>
<td><a href="mailto:pmc@le.ac.uk">pmc@le.ac.uk</a></td>
</tr>
<tr>
<td>Prof. Dai DAVIES</td>
<td>1.14</td>
<td>2092</td>
<td><a href="mailto:dld3@le.ac.uk">dld3@le.ac.uk</a></td>
</tr>
<tr>
<td>Prof. Andrew ELLIS</td>
<td>0.08</td>
<td>2138</td>
<td><a href="mailto:ame2@le.ac.uk">ame2@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Corey EVANS</td>
<td>-1.19</td>
<td>3985</td>
<td><a href="mailto:cje8@le.ac.uk">cje8@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Antonio GUERREIRO</td>
<td>2.19</td>
<td>4670</td>
<td><a href="mailto:ag398@le.ac.uk">ag398@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Sandeep HANDA</td>
<td>2.10</td>
<td>2128</td>
<td><a href="mailto:sh78@le.ac.uk">sh78@le.ac.uk</a></td>
</tr>
<tr>
<td>Prof. Rob HILLMAN</td>
<td>MC 020</td>
<td>2144</td>
<td><a href="mailto:arh7@le.ac.uk">arh7@le.ac.uk</a></td>
</tr>
<tr>
<td>Prof. Eric HOPE</td>
<td>0.10</td>
<td>2108</td>
<td><a href="mailto:egh1@le.ac.uk">egh1@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Andrew HUDSON</td>
<td>2.18</td>
<td>2099</td>
<td><a href="mailto:ah242@le.ac.uk">ah242@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Kal KARIM</td>
<td>2.20</td>
<td>4668</td>
<td><a href="mailto:kk256@le.ac.uk">kk256@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Mark LOWE</td>
<td>1.11</td>
<td>2109</td>
<td><a href="mailto:mpl10@le.ac.uk">mpl10@le.ac.uk</a></td>
</tr>
<tr>
<td>Prof. Paul MONKS</td>
<td>0.11</td>
<td>2141</td>
<td><a href="mailto:psm7@le.ac.uk">psm7@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Elena PILETSKA</td>
<td>2.03</td>
<td>4669</td>
<td><a href="mailto:ep219@le.ac.uk">ep219@le.ac.uk</a></td>
</tr>
<tr>
<td>Prof. Sergey PILETSKY</td>
<td>2.22</td>
<td>4666</td>
<td><a href="mailto:sp523@le.ac.uk">sp523@le.ac.uk</a></td>
</tr>
<tr>
<td>Name</td>
<td>Room Number</td>
<td>Phone Number</td>
<td>E-mail Address</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------</td>
<td>--------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Prof. Emma RAVEN</td>
<td>0.12</td>
<td>7047</td>
<td><a href="mailto:el10@le.ac.uk">el10@le.ac.uk</a></td>
</tr>
<tr>
<td>Prof. Karl RYDER</td>
<td>MC 022</td>
<td>2088</td>
<td><a href="mailto:ksr7@le.ac.uk">ksr7@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Greg SOLAN</td>
<td>1.13</td>
<td>2096</td>
<td><a href="mailto:gas8@le.ac.uk">gas8@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Alison STUART</td>
<td>0.19</td>
<td>2136</td>
<td><a href="mailto:amc17@le.ac.uk">amc17@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Barbara VILLA MARCOS</td>
<td>1.10</td>
<td>1026</td>
<td><a href="mailto:bvm4@le.ac.uk">bvm4@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Michael WHITCOMBE</td>
<td>2.21</td>
<td>4667</td>
<td><a href="mailto:mw319@le.ac.uk">mw319@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Dylan WILLIAMS</td>
<td>0.18</td>
<td>3616</td>
<td><a href="mailto:dpw10@le.ac.uk">dpw10@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Shengfu YANG</td>
<td>-1.30</td>
<td>2127</td>
<td><a href="mailto:sfy1@le.ac.uk">sfy1@le.ac.uk</a></td>
</tr>
<tr>
<td><strong>MC = Materials Centre</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Administrative &amp; Support Staff</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mrs Zahira AHMED</td>
<td>0.01</td>
<td>2100</td>
<td><a href="mailto:za4@le.ac.uk">za4@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Dominic BANKS</td>
<td>0.09</td>
<td>2131</td>
<td><a href="mailto:db377@le.ac.uk">db377@le.ac.uk</a></td>
</tr>
<tr>
<td>Mrs Caroline BILSON</td>
<td>0.01</td>
<td>5329</td>
<td><a href="mailto:cb457@le.ac.uk">cb457@le.ac.uk</a></td>
</tr>
<tr>
<td>Ms Claire CARTWRIGHT</td>
<td>0.09</td>
<td>2119</td>
<td><a href="mailto:cflc1@le.ac.uk">cflc1@le.ac.uk</a></td>
</tr>
<tr>
<td>Mr Sai CHOUDHURY</td>
<td>-1.18</td>
<td>2111</td>
<td><a href="mailto:sc90@le.ac.uk">sc90@le.ac.uk</a></td>
</tr>
<tr>
<td>Mrs Chris GODDARD</td>
<td>0.16</td>
<td>3403</td>
<td><a href="mailto:cg38@le.ac.uk">cg38@le.ac.uk</a></td>
</tr>
<tr>
<td>Dr Gerry GRIFFITH</td>
<td>2.08</td>
<td>2146</td>
<td><a href="mailto:gag3@le.ac.uk">gag3@le.ac.uk</a></td>
</tr>
<tr>
<td>Mrs Dawn KISSOON</td>
<td>1.08</td>
<td>2091</td>
<td><a href="mailto:dck1@le.ac.uk">dck1@le.ac.uk</a></td>
</tr>
<tr>
<td>Mr Richard LANE</td>
<td>1.08</td>
<td>2091</td>
<td><a href="mailto:rcl3@le.ac.uk">rcl3@le.ac.uk</a></td>
</tr>
<tr>
<td>Miss Gigi LAW</td>
<td>0.01</td>
<td>3506</td>
<td><a href="mailto:mcl33@le.ac.uk">mcl33@le.ac.uk</a></td>
</tr>
<tr>
<td>Mr Mick LEE</td>
<td>2.08</td>
<td>2146/2123</td>
<td><a href="mailto:ml34@le.ac.uk">ml34@le.ac.uk</a></td>
</tr>
<tr>
<td>Mrs Gayle PRICE</td>
<td>-1.22/-1.25</td>
<td>2085</td>
<td><a href="mailto:gn45@le.ac.uk">gn45@le.ac.uk</a></td>
</tr>
<tr>
<td>Miss Vicky ROBBINS</td>
<td>0.01</td>
<td>7843</td>
<td><a href="mailto:vkr3@le.ac.uk">vkr3@le.ac.uk</a></td>
</tr>
<tr>
<td>Mr Carl SCHIEFERSTEIN</td>
<td>-1.22</td>
<td>2193</td>
<td><a href="mailto:cs99@le.ac.uk">cs99@le.ac.uk</a></td>
</tr>
<tr>
<td>Mr Kuldip SINGH</td>
<td>2.08</td>
<td>2146/2118</td>
<td><a href="mailto:ks42@le.ac.uk">ks42@le.ac.uk</a></td>
</tr>
<tr>
<td>Mr David SWINFELD</td>
<td>-1.18</td>
<td>2111</td>
<td><a href="mailto:ds130@le.ac.uk">ds130@le.ac.uk</a></td>
</tr>
</tbody>
</table>
Student Communications and Personal Details
The University keeps a record of your personal details such as your full name, addresses i.e. home address and term-time address, telephone numbers, personal email address and your emergency contact details. It is important to keep your details up to date as this will help you to receive information about your studies and exams and also ensure that official documents are provided to you with the correct name details.

You can check and update your details by logging-in to MyStudentRecord http://mystudentrecord.le.ac.uk using your University username and password. Click on the My Details tab and you will then be able to review and change your personal details.

It is important that you check your University email account frequently to ensure that you do not miss any important communication from the University. If you are experiencing any difficulties with your computer account, you should advise IT Services who will attempt to assist you in resolving the problem.

Information on the Web
Departmental Website: http://www.le.ac.uk/chemistry/

Department Facilities
Instrumentation and specialist facilities
Cutting-edge chemistry requires access to all sorts of specialised facilities. This includes modern instruments for chemical analysis. Knowledge and the use of these instruments is an important part of your training as a chemist.

The Department contains a wide variety of equipment, including numerous small instruments such as FTIR spectrometers and gas/liquid chromatographs (e.g., GC, GC/MS and HPLC), through to major specialised equipment such as high-field NMR spectrometers, atomic force microscopes, high-resolution mass spectrometers, and a X-ray diffractometer.

You will encounter these, and much more during your undergraduate studies. The Department also has extensive technical support from its own mechanical, electronic, and glassblowing workshops.

Teaching laboratories
The Department is equipped with spacious fully equipped teaching laboratories. In the summer of 2014 the teaching labs were expanded and refurnished. Different parts of the teaching laboratory now focus on specific areas of chemistry. For example, a section of the laboratory is setup specifically for Physical Chemistry experiments. This allows students to experience both synthetic and physical chemistry experiments in a given semester. This also results in better overlap between experiments and course modules enhancing the student learning experience. There are also instrument rooms which contains a variety of spectrometers (e.g., UV-Vis/FTIR/HPLC/GC) for routine undergraduate use.

First year students will have laboratory sessions in the undergraduate teaching lab. This is on the first floor of the George Porter building and is fully equipped with all items needed for level experiments.
Computers

Computer skills are vital in the modern world and will form an important part of your training. The university has over 850 networked PCs linked to a central server, which students will have access to. Furthermore, the department has WiFi so students can access the internet anywhere in the building.

An enormous range of software is accessible, all of which runs under Windows. This includes Office 2013, graphical analysis software, specialised chemistry programs (e.g., ChemDraw), and access to the internet and email (via your IT account).

There are PCs in many different locations on and around campus including the Department (Chemistry Computer Room on the second floor), the main library and the halls of residence.

The department has a colour and a black and white student printer. The colour student printer is located in the computer room on the second floor, the black and white student printer is on the ground floor next to the bus shelter.

Lecture theatres

The Chemistry Department houses three lecture theatres. These lectures are used by all Departments in the University.

Student Reading Room

A spacious student Reading Room provides a quiet working area for students. The Reading Room can be used by anyone; however, it is predominantly used by Chemistry students to complete tutorial problems sheets, write laboratory reports, or simply as a place to do some reading. The Reading Room also has a selection of text books available for student use.

Molecular Modelling Laboratory

The molecular modelling laboratory in the Department is an ideal space for holding seminars, tutorials or workshops sessions as well as a quiet study area for students.

The Molecular Modelling Laboratory can be booked out for student use. In order to book this please e-mail chemadmin@le.ac.uk or come into the main office during office hours (8am – 5pm) and the team will be happy to book this for you if possible.

Students are also welcome to use the foyer for group discussions although please ensure that you do not disturb the lectures taking place.
Learn at Leicester

Whatever your subject or level of study, there are many, many different ways in which you can access academic advice and support. The Learn at Leicester webpage provides you with further details of this support, together with direct links to a wide range of resources and services to help you:

- Make the most of the Library
- Develop your IT skills
- Manage your own learning
- Improve your English language
- Get independent advice about your course
- Manage your student information
- Sharpen your mathematics and statistics skills
- Improve your problem-solving ability
- Improve ability to work in teams
- Improve ability to present with confidence

You can access all of this by visiting: www.le.ac.uk/learnatleicester

University Library

The Library is your gateway to high quality information relevant to your studies. Using it effectively contributes directly to your success.

The Library provides you with:

- access to a huge range of specialist digital and print information resources for your subject;
- help in finding and using information - online, face to face and by telephone;
- individual and group study space;
- PCs and wireless networking for your own device throughout the David Wilson Library;
- services for distance learners.

The Library is a shared resource for all members of the University. Please respect it and observe the Library regulations available at www.le.ac.uk/library/about.

To get started, visit www.le.ac.uk/library.

For information about your subject, please visit http://www2.le.ac.uk/library/find/subjects/chemistry

IT Services

Whilst studying at the University you will have a University IT account and email address. There are hundreds of University PCs available with Office 2013 and many specialist programs to help you with your studies.

Visit www.le.ac.uk/it4students for more information about:

- Student email: access your email and calendar anywhere; on your laptop or mobile device
- Printing: print from any device to a University printer
- Microsoft Office: available at no cost whilst you study at the University
- IT Help: visit the Help Zone in the Library, phone 0116 252 2253, ithelp.le.ac.uk for IT Self Service, web chat or email ithelp@le.ac.uk
- IT Training: attend our workshops in Word, PowerPoint and Excel
- Wifi: free access to eduroam wifi on campus, in student accommodation or at other universities
- PCs on campus: there are over 900 PCs available, with 350 located in the David Wilson Library (including 24/7 access during exam periods)
- OneDrive: the online storage location for all your files
- Blackboard Virtual Learning Environment: support and information for all your courses
- Leicester Digital Library: access to journals, databases and electronic books online
Student Learning Development

Studying for a degree is a stimulating, challenging and rewarding experience. In order to make the most of this experience, the University of Leicester provides a wide range of resources and services to support and enhance your academic development in areas such as essay-writing, critical thinking, independent learning and time-management. The Student Learning Development Team is here to help you develop the skills and abilities you need in order to succeed in your studies.

To find out more about how we can help you develop your academic skills and abilities, visit our website: www.le.ac.uk/succeedinyourstudies.

Students’ Union Education Unit (ED)

Education help and advice is provided by the Students’ Union for all students.

If you would find it helpful to talk to someone outside of your department, we offer a free, confidential service to help and advise you about where to go and what to do. If you wish to come and talk to us about your personal circumstances or academic worries, for example, exams or putting together an academic appeal, we will provide professional and friendly support.

You will find the Education Unit staff in the Students’ Union Building on the first floor, within the West Wing. Opening hours are 10.00 am to 4.00 pm, and you can either pop in or book an appointment by contacting us on the following details:

Contact: Students’ Union Education Unit (ED), Students’ Union (First Floor)
+44 (0)116 223 1132 | educationunit@le.ac.uk | http://leicesterunion.com/support/education

Online chat facilities are also available for appointments and drop in sessions.

Facebook – https://www.facebook.com/talktoED (Drop in on Wednesdays, 3:30pm-4:30pm)
Skype - @ed_ucation1 (Drop in on Tuesdays, 9am-10am)

Learn a New Language with Languages at Leicester

There are many benefits to learning a new language. Not only could you enhance your career prospects and broaden your cultural horizons, but studies show that you could also improve your literacy skills, boost your memory, increase your attention span and even help to grow your brain!

Study with the Languages at Leicester Team on campus, and you will be taught by expert native tutors who are based within our School of Modern Languages, which has been ranked 3rd in the country in the University League Tables, The Guardian University Guide 2016.

We offer 16 different languages including Arabic, British Sign Language, Chinese, German, Korean and Spanish to name just a few, six levels of learning and two course lengths, so you can study in a way that suits you. Classes take place during evenings and Wednesday afternoons, as well as intensive ‘fast track’ courses on Saturday mornings.

Find out more about Languages at Leicester, including fees and term dates at: www.le.ac.uk/ml/lal.

The successful completion of a Languages at Leicester course will appear on your Higher Education Achievement Report (HEAR) when you graduate. For further details about the HEAR, please visit: www.le.ac.uk/hear.

Contact: Languages at Leicester +44(0)116 252 2662 | lalenquiries@le.ac.uk | www.le.ac.uk/ml/lal
Other University Facilities

English Language Training Unit (ELTU) [http://www2.le.ac.uk/offices/eltu](http://www2.le.ac.uk/offices/eltu)
Languages at Leicester [http://www2.le.ac.uk/departments/modern-languages/lal](http://www2.le.ac.uk/departments/modern-languages/lal)
Victoria Park Health Centre [http://www.victoriaparkhealthcentre.co.uk](http://www.victoriaparkhealthcentre.co.uk)
University Chaplaincy & Prayer Rooms for students [http://www2.le.ac.uk/institution/chaplaincy](http://www2.le.ac.uk/institution/chaplaincy)

University Regulations

Senate Regulations ([www.le.ac.uk/sas/regulations](http://www.le.ac.uk/sas/regulations)) contain rules and other important information about being an undergraduate or taught postgraduate student at the University of Leicester. The Regulations are part of the formal contract between you and the University; you will have confirmed when completing registration that you will comply with procedures defined in the University’s Regulations.

The Quick Guide to Student Responsibilities ([www.le.ac.uk/sas/regulations/responsibilities](http://www.le.ac.uk/sas/regulations/responsibilities)) summarises some of your most important responsibilities as a student at Leicester, as defined in detail in the Regulations. These responsibilities relate to:

- attendance
- submission of work by set deadlines
- term time employment (full-time students – Home/EU and International)
- illness or other circumstances impacting upon studies
- maintaining your personal details
- the additional responsibilities of international students

Failure to adhere to student responsibilities can have serious consequences and may lead to the termination of your studies.
Student Responsibilities

The University expects its students to behave responsibly and with consideration to others at all times. The University’s expectations about student behaviour are described in:

- the Student Charter
- the Regulations governing Student Discipline
- the Student Code of Social Responsibility
- the Code of Practice governing Freedom of Speech
- the University’s regulatory statement concerning Harassment and Discrimination

These can be found at www.le.ac.uk/senate-regulations

It is reasonable for teaching staff to expect students to:

- observe the University’s regulations and code of conduct;
- attend all classes and arrive on time;
- meet assessment deadlines and submit only original work for assessment; you will lose marks if you miss deadlines; see later for policy on cheating and plagiarism;
- register for modules and exams by the set deadline;
- keep a diary of appointments and classes;
- manage their own time and workload and use study periods in a disciplined way;
- inform the Department as soon as possible if you cannot attend a class or keep an appointment;
- make optimum use of the University’s opportunities and resources.
- check e-mails, Blackboard, notice board and pigeon holes regularly for communication from staff;
- fill in module questionnaires to provide feedback.

Attendance and Engagement Requirements

Attendance and engagement with your course is an essential requirement for success in your studies. The University’s expectations about attendance are defined in Senate Regulation 4: governing student obligations (see www.le.ac.uk/senate-regulation4). Full-time students must reside in Leicester, or within easy commuting distance of the city, for the duration of each semester. You should attend all lectures, seminars, practical sessions and other formal classes specified in your course timetable, unless you have been officially advised that attendance at a particular session is not compulsory or you have received formal approval for absence. You are also expected to undertake all assessments set for you.

The University operates a Student Attendance Monitoring procedure. Your attendance will be monitored throughout the academic year and if sessions are missed without an acceptable explanation being provided to your department then neglect of academic obligations procedures will be initiated. This may result in your course of study being terminated.

If you are an international student and your course is terminated this will be reported to UK Visas and Immigration (UKVI), in line with University sponsor obligations.

Neglect of Academic Obligations

You are expected to attend all learning and teaching events which are timetabled for you. These include lectures, tutorials or practical classes. You are also expected to submit work within the deadlines notified to you. Persistent failure to attend taught sessions and/or to submit work, without good cause, will be considered to be a neglect of academic obligations. Departmental procedures for dealing with neglect are set out within the University’s regulations (see http://www.le.ac.uk/senate-regulation4 ‘Neglect of academic obligations’). In the most serious of cases of neglect the University has the right to terminate a student’s course.
Examination Regulations

If your course involves any exams you must ensure that you are familiar with the University's Examination Regulations (www.le.ac.uk/sas/assessments/examregs). These contain a variety of regulatory information and instructions relating to exams, including the rules governing:

- scheduling
- admittance
- student conduct
- permitted and prohibited items and clothing
- use of calculators and dictionaries
- absence due to illness
- cheating

You can also find information about exams in the Students’ Guide to Exams (www.le.ac.uk/sas/assessments/examsguide)
Course details

Degree Programmes

Degree Courses
Chemistry (USA/Industry/EU)
Chemistry with Forensic Science (USA/Industry/EU)
Pharmaceutical Chemistry (Industry)

MChem. Degrees
You have the opportunity to read for the four year undergraduate MChem (Master of Chemistry) degrees. The MChem Degrees are Honours degrees and are categorised like the BSc (Hons) degrees (1\textsuperscript{i}, 2:1, 2:2 etc). You do not need to do anything immediately but you must make any decision before the end of the first year. This gives you some time to think about whether you want to do the relevant MChem degree and plan accordingly.

Answers to frequently asked questions are given below:

What is the difference between an MChem and a taught MSc?
MSc courses are postgraduate degrees in specialist areas. The MChem degrees are for those who want to become professional research chemists. These have specialist components and include a more substantial research project.

Does this mean that the BSc degrees have no specialist options?
No! Our three year BSc Chemistry (Hons) Degrees include some specialist options. However, there is not sufficient time to cover in three years all the material needed to train a modern research chemist, so the fourth year of the MChem course allows the study of Modules appropriate to the needs of a research chemist.

Does this devalue the BSc degrees?
No. They are different degrees. The BSc (Hons) degrees are designed to prepare you for careers in industry, teaching, commerce or government where the emphasis is not heavily weighted towards research. Moving some of the more specialised research topics to the fourth year enables you to consolidate your knowledge of mainstream chemistry in the three year degree. An MChem degree is an ideal preparation for students who wish to make a career in research.

Can I switch between a BSc and an MChem degree?
Yes. Local Education Authority regulations allow a transfer from a three year to a four year course, \textit{i.e.} BSc to MChem, up to the end of the first year. Switching the other way can be done at any time. If you want to change to the MChem degree you have to achieve a satisfactory qualifying standard. The qualifying standard will be set such that entrants can expect to succeed and be awarded an MChem Honours Degree and is likely to be at upper second class level (>60%) but will depend on individual circumstances. If you are not admitted to the MChem degree you continue to study for a BSc (Hons) Degree.

Can I still do postgraduate research with a BSc?
At the moment, yes. At present only students with a BSc 2(i) or above are eligible for Government EPSRC awards. However, the Department cannot guarantee that this will remain the case, MChem or MSc may become the minimum requirement. Already, many Chemistry departments around the country will only accept students who have an MChem or MSc, therefore your choice of PhD places may be severely limited if you have only done a BSc rather than MChem.
Programme and Module Specifications

View the programme and module specifications for your course via www.le.ac.uk/sas/courses

In the programme specification you will find a summary of the aims of your course of study and its learning outcomes, alongside details of its teaching and learning methods and means of assessment. The programme specification also identifies the core modules that make up the course and any choice of optional modules. Each module has its own specification that formally records that module’s aims, teaching and learning methods, assessment components and their percentage weighting.

ERASMUS Exchanges, Years Abroad, Industrial Placements

All of the MChem degrees give you the option of spending your 3rd year on a placement (these options are not available on the BSc programmes). For Chemistry and Chemistry with Forensic Science this placement year may be in the USA, in Europe (Erasmus) or in Industry. For Pharmaceutical Chemistry the placement year is usually industry based. In all cases the 3rd year contributes 30% towards your overall degree classification. Such placement years are highly valued by potential employers and we would encourage all students to consider whether this is an option that they would like take. You can transfer onto these placement degrees at any point up to the second week in Level 2. However, you should note that the Department cannot guarantee that you will be able to secure a placement as in most cases it will involve a competitive application process (industrial placements) or may be limited by available places (USA & Erasmus years). Further details of these ‘year out’ programmes will be made available to you during your 1st year. At the end of your 1st year students will receive talks from students who have been out in industry and on years abroad to get a feel for what it might be like to go out in industry or abroad.

Students who are interested in applying for an industrial placement will have the opportunity to attend a series of workshops as part of the placement preparation module this year. As part of this module students will complete career development exercises and will be supported with all aspects of placement preparation including searching and applying for vacancies. More information about this will be communicated to students in the first few weeks of term.

Attendance Requirements

Attendance is an essential requirement for success in your studies. The University’s expectations about attendance are defined in Senate Regulation 4: governing student obligations (see www.le.ac.uk/senate-regulation4). Full-time students must reside in Leicester, or within easy commuting distance of the city, for the duration of each semester. You should attend all lectures, seminars, practical sessions and other formal classes specified in your course timetable, unless you have been officially advised that attendance at a particular session is not compulsory or you have received formal approval for absence.

In addition to other attendance monitoring practices, departments will monitor international student attendance at two ‘checkpoints’ during each academic year, typically at a compulsory learning and teaching session appearing in course or examination timetables. Students will not normally be notified of checkpoint dates in advance. If you are an international student and you fail to meet attendance and/or checkpoint requirements this may result in the termination of your course and the subsequent reporting of this to UK Visas and Immigration (UKVI), in line with University sponsor obligations.
‘Swipe Green to be Seen’

A new way of registering your attendance at timetabled taught events has been introduced at the University. Most of our teaching spaces have card readers installed inside. When you attend a teaching event, all you need to do is touch your student ID card against one of the readers in the room until it turns green. This will register your attendance at this event. When you do this for the first time, this may take up to five seconds as your card is being activated.

You should attend all lectures, seminars, practical sessions and other formal classes specified in your course timetable. You’ll need to register your attendance by touching your student ID card against a card reader at all of these sessions (unless otherwise notified).

You can register your attendance up to 10 minutes before the start time of a teaching event. If you arrive late, please ensure you still touch your card against a reader.

For further information please see the following webpage https://www2.le.ac.uk/offices/sas2/attendance-management/attendance-management-for-students?uol_r=36e30b25

Teaching Timetable

The academic year is divided into two semesters.

**Semester one**: this semester consists of 10 full teaching weeks. After the Christmas vacation, there is a two week exam period.

**Semester two**: consists of 10 teaching weeks (which may be broken by the Easter vacation), followed by one week for revision classes and an examination period.

The Calendar inside the front cover gives the dates of each semester this year and the week number.

Lectures (and tutorials) last for 50 minutes in order to allow a 10 minute break between consecutive classes. They start 5 minutes after the nominal advertised time. The timetable will be communicated to students and any changes to teaching times and locations will also be communicated. Ensure that you check the departmental Blackboard site regularly to keep up to date with any changes.

Lectures

In general, lectures define the examinable syllabus. You will need to develop the technique of writing a coherent set of notes of the essential points of each lecture to help you consolidate your understanding as the course develops.

For many of you, the lecture will be an unfamiliar form of teaching. You may find that pressure of time and the large lecture audience means that there is little, if any, opportunity for discussion. However, you can always approach a lecturer after the lecture to seek clarification of points which have arisen. A further opportunity is given to discuss chemistry in tutorials and problem classes.
Tutorials

Tutorials provide you with a regular opportunity to develop your ideas, discuss your difficulties and explore your interests with a member of academic staff and to receive feedback on how well you understand the material. You will normally be tutored in a small group of 4-6 fellow undergraduates allowing you the chance to address your individual problems. Small tutorial groups will build up a close working relationship between students and tutors so long as all members of the group pull their weight.

At the beginning of the course you will be given clear guidance about handing in written work, which you should do in preparation for your tutorial. The success of a tutorial depends largely on your attitude. (Not only should you have done the set work beforehand, but also to bring to the tutorial questions and problems which have arisen during your studies. You should also ask questions if you do not understand points made by others in discussion). You will not be penalised for lack of understanding.

Your attendance at tutorials and record of handing in work will be recorded and assessed. You must hand work in by the deadline to receive a mark.

1 = a token effort; 2 = a modest effort; 3 = a good attempt; 4 = a very good attempt; 5 = an excellent attempt

If you fail to attend a tutorial and do not provide satisfactory evidence of reasonable mitigating circumstances then you will receive a mark of zero for that week. All evidence will need to be submitted within 7 days of the original tutorial.

When you hand in your work you must attach a cover sheet which has your name, your tutorial group e.g. B2, and the name of the member of staff taking the tutorial. If this information is omitted or incorrect you will be given a mark of zero.

Coursework Submission

You should make sure that you submit your assignments by their due date to avoid any marks being deducted for lateness. Penalties for late submission of coursework follow the University scheme defined in Regulations governing the assessment of taught programmes (see www.le.ac.uk/senate-regulation7 or www.le.ac.uk/sas/assessments/late-submission).

Change of Course/Module

Discuss your options with your personal tutor, or another appropriate member of staff in your department if you are considering a change of course or module. Changes of course or module require approval by your department and will only be allowed in certain circumstances.

If you wish to transfer from BSc to MChem or vice versa, or between different chemistry degrees, (e.g. Chemistry with Forensic Science to Chemistry), the necessary documentation must be submitted no later than the end of the second week of the first semester. [Transfer between different Chemistry courses can usually be done later than this.] If you wish to change between different chemistry degrees you will need to have a change of course form signed by your year tutor and the form needs to be returned to the main office.

The change of course form can be downloaded from the website or a paper form can be collected from the main office.

See www.le.ac.uk/sas/courses/transfercourse or www.le.ac.uk/sas/courses/transfermodule for details of the procedures involved and deadlines that apply.
Marking and Assessment Practices

Student anonymity will be preserved during the marking of all formal examinations. Summative coursework (i.e. coursework that contributes to your module mark or grade) will be marked anonymously unless there are sound educational reasons for not doing so, or the type of assessment makes marking impractical.

Each programme at the University has one or more External Examiners, who are members of staff of other institutions that review the academic standards at the University and confirm that these are appropriate and comparable with other Universities.

The External Examiners for your courses are listed at:

www.le.ac.uk/sas/assessments/external/current-undergraduate

Feedback and the Return of Work from Staff

Coursework

The Department complies with the University’s policy for the return of marked coursework (see www.le.ac.uk/sas/quality/student-feedback/return-of-marked-work for details of the full policy:

General principles:

- Feedback and provisional grading on coursework will be returned within 21 days of the submission date;
- In exceptional circumstances where this is not possible, you will be notified in advance of the expected return date and the reasons for the longer turn-round time and where possible staff will provide some interim feedback: for example in the form of generic feedback to the class regarding common errors and potential areas for improvement.

Written feedback will be given for all tutorial, PBL and practical work either on a cover sheet or through Blackboard within 21 days of the submission date. To improve your performance you should act on this feedback. In exceptional circumstances where this is not possible, you will be notified in advance of the expected return date and the reasons for the longer turn-round time.

[For full details see http://www.le.ac.uk/sas/quality/student-feedback/return-of-marked-work]

At the end of all theory modules there will be an opportunity for you to comment on the difficulty of the course, quality of the lectures, handouts and associated workshops or tutorials. This information is used by the Department to improve the quality of the courses. The results will be fed back to the Student/Staff Committee in the following academic year.

Examinations

The Department complies with the University’s policy for the return feedback on examinations (see www.le.ac.uk/sas/quality/student-feedback/return-of-marked-work for details of the full policy:

General principles:

- Following the approval of the provisional results by examination boards, departments will make the results available to students within 14 days. Where appropriate this will include a breakdown at the level of the examination and coursework.
- Departments will arrange for feedback on examination performance to be provided.
Progression and Classification of Awards

The University’s system for the classification of awards and the rules of progression are defined in Senate Regulation 5: Regulations governing undergraduate programmes of study (www.le.ac.uk/senate-regulation5). Alternatively, refer to the Student and Academic Services website for information about degree classification and progression: www.le.ac.uk/sas/assessments/progression-ug

Any specific progression requirements for your course are stated in its programme specification (see www.le.ac.uk/sas/courses/documentation)

Progression to Level 3 for the Chemistry Degrees

BSc degrees

If you pass all the modules you will progress to Level 3 of the relevant Honours Degree Course; this will be the expectation of most students. If you do not succeed in passing all the Theory modules at the first sitting, you are allowed a resit except in practical modules in the following September. The pass mark is normally 40%, but at the discretion of the examiners, marks of 35-39% may be compensated for (see how the 2nd year mark is calculated).

MChem Degrees

It is envisaged that, in order to continue on to the relevant MChem degree in year 3, students will normally have achieved at least a 2.1 standard at the end of the second year. Students whose overall average is less than 60% will be considered individually. Students who do not reach the standard required for MChem will be transferred to BSc Hons.

Note: this means that MChem/USA students who do not reach this standard will not be eligible to go to the USA.

How the 2nd Year Mark is calculated

All the modules count in direct proportion to their credit rating, i.e. a 10-credit module counts 10/120 i.e. 8.33% to the year.

What happens if you fail

(i) If you fail any Practical module (<40%) your course will be terminated. There are no resits for practical courses; it is therefore essential that you complete the continuous assessment in practical work.

(ii) If you fail any other modules in January or June, you will be expected to resit them in September. If your overall credit weighted average is >40%, the Board of Examiners may excuse you from resits in modules for which you achieve 35-39%.

After resits, similar rules apply, but you should also note the following:

The minimum requirement to stay on the Honours course is an overall average of >40% and have passed (>40% or compensation) in 110 credits. If you have only achieved 90 credits or less your course will be terminated. If you have passed 100/120 credits you may, at the discretion of the Board of Examiners, be offered a resit without residence.

Note:

For Chemistry with Forensic Science failure in the Analytical modules (CH2040/2041) or for Pharmaceutical Chemistry failure in BS2013 and/or CH2041 may mean you cannot continue on that course – you may at the discretion of the Board of Examiners be able to transfer to Chemistry.
Referencing and Academic Integrity

Principles of academic integrity apply to the work of everyone at the University, staff and students alike, and reflect the University’s commitment to maintaining the highest ethical and academic standards. A key part of this is acknowledging where and when, in the process of producing your own work, you have drawn on the work of others. In practice, this means that the ideas, data, information, quotations and illustrations you use in assignments, presentations, reports, research projects etc. must be credited to their original author(s). This process of crediting the work of others is achieved through referencing (see the section below on ‘Referencing styles’). Failure to do this properly is to risk committing plagiarism: the repetition or paraphrasing of someone else’s work without proper acknowledgement.

What we mean by ‘plagiarism’, ‘self-plagiarism’ and ‘collusion’

Plagiarism is used as a general term to describe taking and using another’s thoughts and writings and presenting them as if they are our own. Examples of forms of plagiarism include:

- the verbatim (word for word) copying of another’s work without appropriate and correctly presented acknowledgement;
- the close paraphrasing of another’s work by simply changing a few words or altering the order of presentation, with or without appropriate and correctly presented acknowledgement;
- unacknowledged quotation of phrases from another’s work;
- the presentation of another’s concept as one’s own;
- the reproduction of a student’s own work when it has been previously submitted and marked but is presented as original material (self-plagiarism).

Collusion is where work is prepared or produced with others but then submitted for assessment as if it were the product of individual effort. Unless specifically instructed otherwise, all work you submit for assessment should be your own and must not be work previously submitted for assessment either at Leicester or elsewhere. For more detailed information on how the university defines these practices, see also: www.le.ac.uk/sas/assessments/plagiarism

The University regards plagiarism and collusion as very serious offences and so they are subject to strict penalties. The penalties that departments are authorised to apply are defined in the Regulations governing student discipline (see www.le.ac.uk/senate-regulation11 ‘Plagiarism and collusion: Departmental penalties for plagiarism and/or collusion).

Resources and advice to help you study with integrity and avoid committing plagiarism

Negotiating these various rules, regulations and conventions can sometimes be a challenge, especially if they are new or different from previous experiences of studying. Check the Student Learning Development website for guidance on how to manage your studies so that you meet the required standards of critical scholarship and academic integrity: www2.le.ac.uk/offices/ld/resources/study/plagiarism-tutorial

If you are in any doubt about what constitutes good practice, ask your personal/academic tutors for advice or make an appointment with Student Learning Development for individual advice. You can book an appointment online by visiting: www.le.ac.uk/succeedinyourstudies.

One of the most important practices in ensuring the academic integrity of your work is proper referencing. The following section contains details of how to ensure your work meets the specific referencing requirements for the discipline(s) you are studying.
Referencing style

You must use a consistent referencing style when referring to books and other publications that you have read for your coursework. Most subject areas have a specific referencing style which you are required to use. If you are on a Joint or Major/Minor programme you may find that your subjects use different referencing styles and it is important that you use the correct ones. To find out which referencing style each department uses, and for information and help on each referencing style, please visit http://www.le.ac.uk/library/help/referencing.

Requirements differ on how to arrange bibliographies (complete list of all reference and other sources at the end of your coursework) and whether references are included within the word count for your coursework – please refer to any separate guidance provided on these points.

Mitigating Circumstances

The University recognises that students may suffer from a sudden illness or other serious event or set of circumstances which adversely affects their ability to complete an assessment or the results they obtain for an assessment. In such cases the mitigating circumstances regulations and procedures may be applied. These regulations are designed to ensure the fair and consistent treatment of all students.

You must keep your department(s) informed at all times of any personal circumstances that may impact upon your ability to study or undertake assessments. Tell your department(s) or Distance Learning Hub about any such circumstances at the time they occur. You need to fill out a mitigating circumstances form which can be found at the link below. You need to supply supporting documentation (e.g. a medical certificate) as soon as possible and no later than the deadline relevant to the assessment(s) affected. Normally, the deadline for submission of a mitigating circumstances claim will be no later than five working days after the assessment deadline to which it relates.

See www.le.ac.uk/sas/regulations/mitigation for full details of the mitigating circumstances regulations and procedures, including the University’s definition of a mitigating circumstance.

The Chemistry Department procedures for mitigating circumstances and absence from the University are described below (see also Blackboard site CH5001).

Absence from the University

Your attendance at workshops, practicals, tutorials and some other sessions (e.g. Problem Based Learning) is monitored and if you miss more than 3 sessions in a 2 week period you will be e-mailed to visit your personal tutor to explain your absence. Continued lack of attendance will be dealt with by the senior tutor, Professor Abbott, or the Head of Department. Serious lack of attendance could result in a Gross Neglect Warning which may result in the removal of the right to resit any exams you fail.

If you have any problem which is affecting your work or causing you to miss any of your commitments, you should discuss this with your personal tutor who will respect the confidentiality of your discussion. Your personal tutor may advise you to see a Student Counsellor or a Chaplain (see above). Students who are absent from the university are required to report this to the Department:

(a) if the illness leads to absence from classes at which attendance is compulsory (tutorials, workshops, laboratory sessions, assessments or university exams);

(b) where it might be a contributory factor in a failure to meet deadlines or to perform up to expectations in any academic assignment.

This should be done using the appropriate online form.

https://www2.le.ac.uk/departments/chemistry/current-students/ug/mitigating-circumstances-and-absence-reporting
Minor illness/absence for a period of up to five working days

*Students must self-certify absence by filling in the online form as soon as they return, giving details of the reason for the absence and submit any corroborating evidence.*

**Illness/absence is of six or more days duration.**

In this case medical advice should be sought and a medical certificate obtained and submitted. Students are responsible for collecting medical certificates from the Victoria Park Health Centre (or their own GP) and supplying a copy to the Department. Students should fill in a form after 1 week and a second one when they return to the University.

**Serious or on-going medical problem**

If you have a serious or on-going medical condition it is up to you to decide (in consultation with your personal tutor and/or student counsellor) if you are fit to continue with your studies. The University does not allow us to continue making allowances for an on-going condition unless the condition worsens, *i.e. if you continue to study you are agreeing that you are fit to study and that the illness/condition is not significantly affecting your performance.* You always have the right to withdraw temporarily and restart your studies the following year if your condition has improved.

*You should fill in the appropriate form.*

**Absence from University exams in January, May/June or September**

In this case a medical certificate is required regardless of the duration of the absence. *The form must be submitted before the end of Week following the exam period (Jan/June) or by the Monday immediately following the exam period in September.*

*The examiners are unable to make allowance for your illness unless you fill in the form and submit appropriate documentation.*

**Personal Support for Students**

**Departmental Student Support Arrangements**

From discussion of academic progress, to friendly advice on personal matters; personal tutors are there to provide support, advice and guidance on an individual level. Common topics for discussion may include course changes, study progress, module choices, exam results, career opportunities or more personal problems such as accommodation or financial difficulties. The Department’s personal tutor system operates in accordance with the [Code of Practice on Personal Support for Students](http://www.le.ac.uk/sas/quality/personaltutor): [www.le.ac.uk/sas/quality/personaltutor](http://www.le.ac.uk/sas/quality/personaltutor)

**Equal Opportunities**

The Department’s Equal Opportunities officer is Professor Paul Cullis ([pmc@le.ac.uk](mailto:pmc@le.ac.uk)). If you would like to raise any concerns related to equal opportunities (ethnicity, gender, disability etc.) please contact Paul at the e-mail address above.
Athena SWAN

The Department of Chemistry was successful in achieving a Bronze Athena SWAN award in September 2013. This achievement shows the department’s commitment to advancing women’s careers in higher education and research in science, technology, engineering, maths and medicine (STEMM).

The beliefs underpinning the Athena SWAN Charter are:

- The advancement of science, technology, engineering, maths and medicine is fundamental to quality of life across the globe.
- It is vitally important that women are adequately represented in what has traditionally been, and is still, a male-dominated area.
- Science cannot reach its full potential unless it can benefit from the talents of the whole population, and until women and men can benefit equally from the opportunities it affords.

The good practice that arises from implementation of the Athena SWAN ethos is of benefit to everyone in higher education.

- Good practice is of benefit to all staff and students; bad practice adversely affects the careers of women more than men.
- Good practice does not target initiatives solely at women, processes that are transparent and fair are of benefit to everyone.

For further information on Athena SWAN please see the following webpage:
http://www2.le.ac.uk/departments/chemistry/athena-swan-1

If you have any suggestions for embedding the Athena SWAN ethos in the Chemistry department, or would like to get involved in Athena SWAN activities, please contact the Chair of the departmental Athena SWAN committee, Dr Alison Stuart (amc17@le.ac.uk).

University Student Support Arrangements

Please note that the University of Leicester offers a holistic service to meet your needs in the major areas of student life, health and well-being, practical matters and learning and career development.

AccessAbility Centre

The Centre offers a range of services to all students who have specific learning difficulties, such as dyslexia, disabilities or long-term conditions including mental health which have a substantial day to day impact on their studies. Staff offer one to one support, the co-ordination of alternative examination arrangements and assistance with applications for the Disabled Students’ Allowance. It is possible to be screened for specific learning difficulties and access to formal assessment is available. Students are means tested to see if they are eligible for assistance with the cost of formal assessments. The open access Centre acts as a resource base for students and staff and is a relaxed place for students to work. Its computers are equipped with specialised software for screen enlargement. Essay planning and speech output software is on the University network. The Centre has some specialised equipment (CCTV, enlarged keyboard, and chairs) and some for loan (chairs, writing slopes and digital recorders). Photocopying and printing facilities are also available. The Centre welcomes self-referrals as well as referrals from academic staff.

Contact: AccessAbility Centre, David Wilson Library
Tel/minicom: +44 (0)116 252 5002 | Fax: +44 (0)116 252 5513 | accessible@le.ac.uk | www.le.ac.uk/accessability

Please note that the departmental AccessAbility officer is Professor Paul Cullis (pmc@le.ac.uk), who would be happy to answer any questions you may have.
Student Welfare Centre

The Student Welfare Service offers wide ranging practical support, advice, and information for students.

Financial advice is offered, with information on budgeting and funding. Specialised staff can advocate over late loans and other financial issues. Students can apply for hardship grants and loans through the Service.

Information, advice and guidance is available on finance issues and budgeting. In addition, students can apply for hardship awards and loans through the welfare service.

For international students, the Student Welfare Service coordinates The International Welcome Week in September and January. Expert immigration advice is available and students are strongly advised to renew their visas through the scheme provided by Student Welfare. Specialised Officers also support students who experience financial or personal problems.

Contact: Student Welfare Service, Percy Gee Building (First Floor).
Tel: +44 (0)116 223 1185 | Fax: 0116 223 1196 | welfare@le.ac.uk | www.le.ac.uk/welfare

Counselling and Wellbeing Service

This Service offers a range of expertise and support for the psychological aspects of health and wellbeing.

Services on offer include

Student Counselling Support

Time-limited, free and confidential one-to-one counselling to help students find ways of dealing with academic-related or personal issues that may be affecting ability to study or engage with student life. Helping students to build on their skills to cope with the challenges of study, work and relationships through workshops.

For information see our website: www.le.ac.uk/counselling

Contact: Student Counselling Service
+44 (0)116 2231780 | counselling@le.ac.uk

Student Mental Wellbeing Support

Practical, emotional and skills based one-to-one support to students managing mental health issues whilst at the University. Helping students to build on their skills to cope with the challenges of study, work and relationships through workshops.

Contact: Student Support (mental wellbeing)
+44 (0)116 252 2283 | mentalwellbeing@le.ac.uk
www2.le.ac.uk/offices/ssds/student-support-mental-wellbeing

Student Healthy Living Service

The Student Healthy Living Service provides direction to health care and health related activity which will contribute to wellbeing and help students to enjoy a balanced life. Students should register for health care local to the University; The University works closely with the Victoria Park Health Centre where staff have expertise in student health. More information can be found on the Healthy Living Service website.

Contact: Student Healthy Living Service
+(0)116 223 1268 | healthyliving@le.ac.uk | go.le.ac.uk/healthyliving
Health Care and Registering with a Doctor

Illness can affect any one of us at any time and for this reason the University strongly advises you to register with a doctor in Leicester. The Victoria Park Health Centre [www.victoriaparkhealthcentre.co.uk](http://www.victoriaparkhealthcentre.co.uk) has expertise in student health and has provided medical care to the University’s students for many years. The Health Centre is located conveniently close to the main-campus and registration is free.

If when you come to University you are already under the care of a ‘specialised team’, have a known medical condition including mental health or waiting for an appointment it is still advisable to register at the Victoria Park Health Centre. Soon after arrival, make an appointment to discuss with one of the doctors who will then be in a better position to communicate with the relevant doctors and help you to manage your condition to avoid any unnecessary disruption to your studies. Please take with you information from your current doctor or consultant which includes diagnosis, current management, including medication (provide a certified English translation if the original is not in English). This is essential for international students as some conditions may be managed differently in this country, particularly in relation to medication which may be licensed differently and may need changing to something which is available to prescribe in this country. If you take medication for your condition you must bring 12 weeks supply with you to ensure continuity until the registration process is complete.

More information about registering with a doctor and other health and well-being services can be found at: [http://www2.le.ac.uk/offices/healthy-living-for-students/new-students/uk-students](http://www2.le.ac.uk/offices/healthy-living-for-students/new-students/uk-students)
Careers and Skills Development

Career Development Service

With your drive and determination, the Career Development Service can help you develop the skills and abilities that will not only help get you to where you want to be after university, but will stay with you for life.

Career development at Leicester isn’t just about getting some work experience and writing a CV; we make sure that you get personal support to achieve your aspirations. We’re here for you from the moment you arrive, through to your graduation and beyond. We’ll give you the opportunity to try new things and to figure out what you want from your career—what it is that really drives, motivates and inspires you.

We’ll also help you identify your personal strengths and what you need to develop to be ahead of the crowd. Even if you’re not sure what it is you want to do yet, we can help you develop the skills and experience that you need to get that first job out of university, but also the ability to manage your own career development and succeed on whichever path you choose.

It’s your career development journey and you decide where it is that you want to go. By working with us you make sure that you’re giving yourself the best possible chance to get there. We’ve got the knowledge and resources to spur you on to success so, by working with us, you really will make the most of you!

As a Leicester student you’ll have access to MyCareers: https://mycareers.le.ac.uk, our career management system, by simply using your university username to login. This is the gateway to:

- Booking one-to-one appointments with our career consultants for support with career planning, job hunting, CVs and applications, and mock interviews
- Booking workshops, such as mock assessment centres and psychometric testing
- Meeting employers who are coming on campus
- Finding all the opportunities available exclusively for Leicester students such as paid internships, volunteering, and extra-curricular activities

If you are looking for part time work whilst studying, make sure you sign up to Unitemps, based in the Students’ Union, for opportunities on campus and in the city.

We’re here to support you throughout your time at university so make sure that you come and visit us and log-in to your MyCareers account to get started!

Contact the Career Development Service:

0116 252 2004 | careershelp@le.ac.uk | www.le.ac.uk/careers

@uolcds | fb.com/uolcds
Feedback from Students

Student Feedback Questionnaires

The Department values your feedback on all of our teaching activities and makes every effort to act upon it to improve the teaching experience for all of our students. You will have the opportunity to give your feedback on every module that you take in the Department through the end of module questionnaires which are made available on Blackboard. Your feedback from these questionnaires is considered by the module convenor during the annual course review which takes places over the summer and each convenor must propose a plan of action to deal with any substantial issues that may have been raised. The Departmental Learning & Teaching Committee oversees the process and ensures that appropriate changes are indeed made in response to feedback. A summary of the list of actions from the course review is made available to students through the Student Staff Committee (SSC) and Blackboard during semester 1.

We appreciate that sometimes students will want to raise specific issues during a module rather than wait until the questionnaire. You can do this through the SSC, your personal tutor and/or the year tutors or by contacting the Head of Teaching (Dr Handa) directly. We would encourage you to raise any potential issues through one of these channels as soon as possible so that we can respond quickly and take any necessary action. Any actions arising as a result will be reported back through the SSC and/or Blackboard.

Listed below are just some of the changes that we have made during the last two years specifically in response to student feedback.

(We have also made other changes to improve the student educational experience but the ones below were in response to issues raised through module questionnaires / the SSC / feedback to year tutors).

All Levels:

Introduced lecture capture for the majority of core modules (for teaching events where rooms were equipped for lecture capture).

Improved exam feedback – giving students a chance to look through their marked exam scripts.

Tutorial feedback (Levels 1 & 2) – an opportunity for students to indicate difficult topics on the cover sheets.

Level 1:

Introduced some additional revision sessions for students failing semester 1 modules.

CH1003 (maths) - switched delivery from lecture followed by workshop to workshop then lecture, this allowed students to get help first and then review their answers in the lecture. Also provided detailed model answers for a representative selection of the problems.

CH1002 & 1006 – lecture note booklets now provided.

CH1007 – introduced group work practice problems & provided audio lectures to listen to before lectures.

CH1031/32 – Moved parts of the introductory biology material from semester 2 to semester 1. Also reviewed material to provide more of a chemistry perspective on biochemistry topics.
Level 2:
CH2005 – answers to workshop questions now supplied.
CH2007 – increased the amount of time spent covering topics students indicated as particularly difficult and also updated lecture notes for these areas.
CH2009 – lectures notes for aromatic / heteroaromatic chemistry rewritten to improve presentation and content.
CH2013 – removed final exam from the assessment, careers activities moved earlier (to help those applying for industrial placements) & changed timing of continuous assessments to avoid clashes with other Level 2 assessments.
CH2023 - students allowed to work in groups for problem classes / continuous assessment (previously done independently).
CH2040 – lecture notes for Dr Evans part completely revamped and updated.
Level 2 practical – reviewed length and instructions for some experiments to ensure enough time for lunch breaks and suggested points where breaks could be taken.
Pharm Chemists - arranged for access to lecture captures for some Level 1 Biochemistry material to help with background for the BS2013 module.

Level 3:
CH3201 – introduced short videos of worked examples of spectroscopy problems.
CH3202 - practice B’board questions made available for the continuous assessment.
CH3203 – increased the fraction of the continuous assessment (now 100%) based on previous exam questions.
CH3204 – drop in / revision sessions arranged for after Easter.
BSc projects – introduced a formative feedback exercise for the practical element to allow students to gauge their performance against the marking criteria.
MChem practical – improved mark sheet & feedback forms for the Phys chem labs; simplified proformas for the synthetic techniques.
Industry students – put procedures in places to allow students to take end of semester examinations at their placement company and so avoid having to travel back to Leicester.
Level 4:

Changed programme specifications so that modules now run across the whole year. This has two consequences – students now have greater choice over module options (no longer restricted to 2 modules each semester) and also allows paced delivery of material throughout the year (with more time for assimilation).

Added two extra module choices to Level 4 (Bioinorganic Chemistry & Nanotechnology)

Introduced some module choice for Pharmaceutical Chemists (previously the programme specifications had none).

MChem projects – introduced a formative feedback exercise for the practical element to allow students to gauge their performance against the marking criteria.

CH4201 – introduced written answers to selected spectroscopic problems to allow for individual feedback (previously this was a group exercise with feedback at group level).

CH4202 – changed the continuous assessment to focus on unseen retrosynthetic problem solving with detailed individual feedback.

CH4203 – added two classes on calculations & numerical problems (practice for the unseen problems on the final exam).

CH4204 – introduced a new essay based continuous assessment to give students training and practice in analysis of research papers (helpful for the final exam).

CH4206 – some additional formative coursework introduced.

Student Staff Committees

Student representatives are invited to sit on the Student/Staff Committee (SSC), usually from each year group, one representative for each degree course. The Committee meets at least once each semester to discuss any issues about the courses or other matters of concern. If you wish any matters to be raised, please contact your year/course representative. Elections for student representatives are usually held by the Student Union, early in the first semester (or at the end of the previous year for returning students).

The Agenda for committee meetings are circulated by email to all members at least one week prior to the meeting date and minutes are circulated as soon as possible following.

For more information about the SSC please see the noticeboard in the George Porter foyer.

The terms of reference will be circulated to all representatives at the start of the year but are also located at: http://www2.le.ac.uk/offices/sas2/quality/codes/documents/sscommittees.pdf

To see the elected representatives for this year: https://www.leicesterunion.com/top-navigation/voice/academic-representation/current-representatives
Departmental Prizes

The following prizes are awarded at the end of year to Chemistry undergraduates.

Best Level 1 Student: The Stuart Trippett Prize
Best Level 2 Student: The Raymond Peacock Prize

The Oxford University Press (OUP) Book Prize is awarded to the most improved First Year Student

The Blandamer Prize is awarded by the Head of the Department of Chemistry to a first year undergraduate student for meritorious conduct

In addition, the Department regularly nominates outstanding second year students for Science Faculty prizes.

The prizes for Level 3 and 4 students are:

Best graduating student (BSc or MChem) Hunter Medal
Top graduating BSc and MChem students Dunlop Polymer Engineering Prizes
Best graduating student in Pharmaceutical Chemistry Celltech Prize
Best graduating Chemistry with Forensic Science student Treatt & Earhool Plantations Prize – prize to be confirmed for 2016/17 academic year

Societies

ChemSoc is the department’s Chemistry society. ChemSoc organises regular social and academic events for anyone with an interest in Chemistry. Events include joint socials with other societies, the ChemSoc Easter Ball, curry nights, laser tag, quiz nights, post-exam celebrations and pre-exam relaxation. The ChemSoc chair for the 2016-17 academic year is Angus Hope (ah521@student.le.ac.uk). For further information on ChemSoc please see their noticeboard in the foyer.

Safety and Security

As part of your induction and when you first start using the department’s labs you will be given detailed safety and security information. Specific safety information is covered under ‘Laboratory Work’.

Problem Classes and Laboratory Information

Problem Classes

These will usually involve demonstrations or supervised learning and/or problem solving. You will often be expected to work in small groups. In addition these sessions will be used to provide an induction to skills training, e.g. writing and oral presentation skills.
Laboratory Work

Laboratory work is designed to make you familiar with practical methods available to the chemist, to give you confidence in your ability to use these methods and to keep proper records, and to give you an opportunity to handle experimental data. Doing practical work also helps you to appreciate the experimental basis on which theoretical concepts are founded and thus should enhance your understanding of these concepts. Later in the course you will also learn how to plan experiments to solve problems, and this will culminate in research projects at Level Three or Four.

Demonstrators in the laboratory are there to give advice about your practical technique and to help you to understand the other lessons which can be learned from each experiment. You will get the most benefit out of laboratory work only if you bring your difficulties to the attention of demonstrators. Although practical work is assessed, you will not be penalised for discussing your problems with demonstrators before you have finished an experiment. Furthermore, it is essential to hand in your practical reports/book for assessment on time.

You cannot proceed to the next level of the degree without passing the practical course. There are no resit practical examinations.

If you are ill and miss a practical session you must complete a mitigating circumstances form or you will be given zero for that session. If you miss several sessions through illness you will be offered the opportunity to catch up. If you do not complete at least 75% of your scheduled sessions, you will fail practical and your course will be terminated.

Sometimes it may happen that, through no fault of your own, an experiment may fail - for example through instrument breakdown. Should this occur, you should not be penalised either by scoring low marks or by having to spend extra time completing the experiment. You must explain immediately to the senior demonstrator on duty what has happened so that he/she can advise you on the correct course of action. This will vary with circumstances, but may (for example) involve giving you a sample with which to continue working or giving you specimen data to interpret. Whatever happens, you must record this in your completed laboratory report. Some of your practical work will be carried out with a partner, especially in Physical Chemistry. When this is so, it is not possible for both of you to carry out every technical or practical manipulation, but it is important, as with work done individually, that you observe and understand each part of the experiment. You must discuss the processing and the interpretation of data with your partner.

Laboratory Books for recording your experiments

A special notebook for recording your experiments is provided in your starter pack.

Broken glassware

If your glassware breakages total more than £50, you will be invoiced for breakages over and above this amount.

Safety in the Chemistry Laboratories

Every effort is made to teach you the hazards associated with handling chemicals. Special risks are identified in the laboratory manuals. For women who are pregnant or are anticipating pregnancy, it is essential that they see the University 'Guidance Notes for New or Expectant Mothers'. This booklet and advice can be obtained from the Students' Union Welfare Office.
Pregnancy

The Department has a duty of care for everyone working in the Chemistry buildings, however under current health and safety legislation pregnant workers are considered to be at special risk. The most important aspect for a student who becomes pregnant is to inform the Department as soon as their pregnancy is confirmed.

The Department’s primary advice to a student in this situation is to **take temporary withdrawal from their degree course or defer their registration**.

In **exceptional** cases the Department recognises this may not be practicable and will then consider each case on an individual basis. If the Department decides to allow the student to continue it will advise the student of the risks involved and will instigate the following procedures to minimise the risk.

- The Course Convener with co-operation from other staff as required will produce a full risk assessment of all the practical’s being undertaken by the student in the UG laboratory, assessing the implications to a pregnant worker.
- Further risk assessments (including COSHH) will also be undertaken of the chemicals you use and may come into contact with in your practical studies in the various laboratories you may work in.
- The completed risk assessment will be given to you and a copy will be retained by the Department for their records.
- If the Course Convener deems it necessary, a written protocol will be issued highlighting the procedures the student **must** follow.
- The written protocol will be issued to you and also held by the Department for their records.
- Where practicable further consideration will be given to other experimental work being carried out in the shared laboratories when you are present, any special advice regarding risk from other work will be communicated to you and a record held by the Department.

The Department will **strive to minimise the risks you may encounter working in a shared UG laboratory, however all risks cannot be eliminated**.

On receipt of the risks assessments and any special instructions from the Course Convener you will be required to sign a declaration that you agree to adhere to the risk assessments, follow any special instructions, have read and understood the course of action that the Department is taking to enable you to continue your studies while pregnant and that you have considered and accept the risk involved to you and your unborn child.

Personal Belongings

Your personal belongings are not covered by the University’s insurance. You are therefore advised to check whether your parents’ or family policies provide adequate protection. If not, private insurance arrangements should be made.

A lost property service operates from the Security Lodge, which is situated at the far end of the Fielding Johnson Building on Wyggeston Drive, University entrance No. 1.

Bicycles may be brought onto the main campus but must be placed in the cycle racks provided, and appropriate security measures taken to help to prevent theft and damage. For advice on preventing cycle theft and details of the University’s Coded Cycle Scheme visit: www.le.ac.uk/estates/facilities_&_services/security/CodedCycleScheme.html
Complaints and Academic Appeals Procedures

The University has robust systems in place governing the quality and standards of its degree programmes and your experience as a student here. We are confident that, like the vast majority of students here, you will enjoy and be satisfied with your course. In most instances your department will be able to resolve any issues that do occur but we recognise that this will not always be possible. For this reason, the University has official procedures that allow eligible cases to be formally reviewed.

Information about these procedures, including the relevant forms, can be found on the Student and Academic Services website: see www.le.ac.uk/sas/regulations/appeals-complaints. These pages should be read in conjunction with the University’s Regulations governing student appeals (www.le.ac.uk/senate-regulation10) and Regulations governing student complaints (www.le.ac.uk/senate-regulation12).

Personal Tutors

Your personal tutor is probably the first member of the academic staff to whom you speak at length. She/he will take a general interest in your progress at the University and provide you with feedback advice, encouragement and support as necessary, as well as monitoring your academic performance.

You should feel free to turn to her/him if you have difficulties of any kind, and in particular you should discuss any circumstances which may affect your academic work or your enjoyment of University life. Your relationship should be informal and friendly, and your own attitude will play an important part in determining how far this is possible. Do remember that your tutor has many tutees, both academic and personal and will not be able to search you out to keep in touch. It is important that you keep your tutor up to date with developments. If your personal tutor needs to contact you urgently, he/she will usually send an e-mail. You are required to see your personal tutor in the first week of term and again in weeks 6 and 16 (to discuss your PDP Skills portfolio). In addition you will see your tutor to collect your end-of-semester exam results in February.

Very occasionally, a student has wished to change personal tutor. Should you ever wish to do this, you should raise the matter with Dr Dylan Williams, the Tutor with special responsibility for all second year students, or, if this is not possible with the Head of Department.

Student Skills Record/Personal Development Planning

During your course you will be expected to keep a record of your learning and skills development. This is useful in helping you identify your strengths and weaknesses. Many employers now ask to see this record. You should discuss this with your Personal Tutor.

Personal Development Planning (PDP) is a structured and supported process designed to give you the opportunity to reflect on your progress and plan for your future development. In doing so, it is hoped that PDP will better enable you to improve and enhance both your academic performance and your prospects for professional and career success after graduation. PDP will help you to:

- recognise the skills and abilities you are developing;
- identify areas for improvement and development; and
- think about how you can improve your employability and career prospects

In addition, Learning Development provides some more general information about what PDP is, and how you can engage with it: www2.le.ac.uk/offices/id/personal-development-planning-pdp.
The Weighting of Modules for your Degree

For all degrees your performance in the first year does not count towards your overall mark. Your mark in years 2, 3 (and 4) counts towards your overall Degree classification as shown below.

<table>
<thead>
<tr>
<th>BSc degrees (3 year)</th>
<th>MChem degrees (including USA/Ind/EU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>0%</td>
</tr>
<tr>
<td>Level 2</td>
<td>40%</td>
</tr>
<tr>
<td>Level 3</td>
<td>60%</td>
</tr>
<tr>
<td>Level 4</td>
<td>50%</td>
</tr>
<tr>
<td>Level 1</td>
<td>0%</td>
</tr>
<tr>
<td>Level 2</td>
<td>20%</td>
</tr>
<tr>
<td>Level 3</td>
<td>30%</td>
</tr>
<tr>
<td>Level 4</td>
<td>50%</td>
</tr>
</tbody>
</table>

Note: In order to qualify for the Hons degrees you must gain 120 credits each year (and average more than 40%). In order to gain credit in a module you must achieve at least 35% in that module (and average more than 40%).

<table>
<thead>
<tr>
<th>Average mark</th>
<th>Credits over final 2 years (see below for MChem)</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 70%</td>
<td>50 credits or more failed</td>
<td>Fail</td>
</tr>
<tr>
<td>67-69</td>
<td>120 credits at 70% or better, failed modules &lt; 40 credits</td>
<td>1st</td>
</tr>
<tr>
<td></td>
<td>If not 120 credits &gt;70% or 40-45 credits failed</td>
<td>2.1</td>
</tr>
<tr>
<td>60-66</td>
<td></td>
<td>2.1</td>
</tr>
<tr>
<td>57-59</td>
<td>120 credits at 60% or better, failed modules &lt; 40 credits</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>If not 120 credits &gt;60% or 40-45 credits failed</td>
<td>2.2</td>
</tr>
<tr>
<td>50-56</td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>47-49</td>
<td>120 credits at 50% or better, failed modules &lt; 40 credits</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>If not 120 credits &gt;50% or 40-45 credits failed</td>
<td>3rd</td>
</tr>
<tr>
<td>40-46</td>
<td></td>
<td>3rd</td>
</tr>
<tr>
<td>35-39</td>
<td><em>this is not an honours degree.</em></td>
<td>Pass</td>
</tr>
<tr>
<td>&lt;35</td>
<td></td>
<td>Fail</td>
</tr>
</tbody>
</table>

For MChem degrees the scheme is essentially the same except that years 2, 3 and 4 are considered; for promotion to the higher category students will need 180 credits (out of 360, i.e. years 2,3 and 4) in the higher category.

[Note: Candidates on a borderline may have a viva with the external examiners. For details of border-line categories, see [http://www.le.ac.uk/academic/quality/Codes/examining/](http://www.le.ac.uk/academic/quality/Codes/examining/) ]
Module Assessment
Assessment of performance is relative to defined criteria, which means that your mark depends only on your performance and not on that of the rest of your class. The bulk of the assessment of each module consists of the end-of-semester exam. For details of the amount of continuous assessment and length of the exams see the individual module details (appendix).

Students must be available to attend examinations on any date within the formal assessment periods, including Saturdays.

Examinations
Finding out your exam marks
You will be able to see your exam results by logging onto MyStudentRecord. For Midsummer exams, marks will be available just before the end of term.

Calculators
Permitted calculators are the Casio FX83 and FX85 models. See http://www.le.ac.uk/sas/assessments/examsguide for the most up to date information.

Anonymity
Formal University end of semester exams are marked anonymously. You will need to take your student ID card with you to all exams, this has your candidate number on it. During the first semester you will be sent confirmation of modules for which you have registered. Ensure that you cross check this.

Course Transcript
At the end of an academic year if you need a transcript you can order one at the following website http://www2.le.ac.uk/offices/sas2/studentrecord/transcripts/year
If you need information on your marks (for instance for an interview) before the end of an academic year please contact the administrative team in the front office or by e-mail to chemadmin@le.ac.uk and a letter with your marks to date can be produced. Please note that marks are subject to change before the end of the academic year and this letter will state this.
Private Study and Vacations

Time for private study is not timetabled, but it is the most important aspect of your work while you are at University. Private study includes the time you will need to spend consolidating your understanding of the information given during lectures (for instance by watching the lecture capture or reading a textbook). It is very important that you do this as the course proceeds and that you do not think that hasty revision just before a formal examination will be adequate. Study in the Christmas and Easter vacation periods are particularly important since examinations are held soon after your return.

Private study also includes reading round the subject and putting some flesh on the skeleton provided by the formal course. This means not only reading the recommended texts, but also thinking about them and questioning them, and making additional notes to supplement the lectures. **On average you should be doing around two hours’ private study for each lecture.** You should also read books of general scientific interest and periodicals such as the *New Scientist* and *Scientific American*. As the course progresses you will be, increasingly, reading more specialist chemical journals. You will find copies of most of the basic chemistry text books in the Main Library: you should explore this collection at an early stage.

Some students find it very productive to study together in groups of 3 or 4. This can generate a good work atmosphere, provide mutual support and an opportunity to help each other with difficulties and even supply an element of competition.

Assessment Deadlines

Almost all of the modules that you are taking will have some continuous assessment that contributes towards the final mark. These assessments can take a variety of forms *e.g.* tutorial work, practical reports, written assignments (some under exam conditions), Blackboard tests, presentations, poster exercises etc. During the course of the year you will need to meet numerous deadlines for submitting these assessments and will also need to plan your work accordingly such that you are prepared for any tests. To help you plan your time the Department will list the **major** assessment deadlines/dates of continuous assessment test at the start of each semester (available on Blackboard). You should note that the list of deadlines is only provisional and the actual date may change slightly (any changes will be communicated to you by the module convenor/lecturer), however you should find them useful when planning ahead.
## Level 2 Modules for Each Degree

|--------------------|---------|------------|----|------------------|-------------------|------------------|

### Semester 1

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>CR</th>
<th>C</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH2005</td>
<td>Bifunctional Molecules</td>
<td>10</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2007</td>
<td>Colloids and Interfaces</td>
<td>10</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2010</td>
<td>Molecular Spectroscopy</td>
<td>10</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2013</td>
<td>Science Communication &amp; Career Skills</td>
<td>5</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2023</td>
<td>Materials Science</td>
<td>10</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>CH2040</td>
<td>Introduction to Analytical Chemistry</td>
<td>10</td>
<td>O</td>
<td>C</td>
</tr>
<tr>
<td>CH2071</td>
<td>Chemistry Practical – Part A</td>
<td>15</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2073</td>
<td>Chemistry Practical (Pharmaceutical) – Part A</td>
<td>10</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>BS2013</td>
<td>Physiology and Pharmacology 1</td>
<td>20</td>
<td></td>
<td>C</td>
</tr>
</tbody>
</table>

### Total Core Credits

Total Core Credits: 120

### Semester 2

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>CR</th>
<th>C</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH2006</td>
<td>Organometallic Chemistry</td>
<td>10</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2009</td>
<td>Chemistry of Rings</td>
<td>10</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2011</td>
<td>Kinetics and Mechanism</td>
<td>10</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2021</td>
<td>Polymer Chemistry</td>
<td>10</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>CH2041</td>
<td>Bioanalytical Chemistry</td>
<td>10</td>
<td>O</td>
<td>C</td>
</tr>
<tr>
<td>CH2072</td>
<td>Chemistry Practical – Part B</td>
<td>20</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>CH2074</td>
<td>Chemistry Practical (Pharmaceutical) – Part B</td>
<td>15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Total Core Credits

Total Core Credits: 120

### NOTE:

Chemistry (Ind/USA/EU) should choose 1 option in each semester.

Chemistry (EU) these students will also do a language class in addition (see Dr Handa) – this does not count towards your degree.
LEVEL 2 MODULES

The following pages contain a brief description of each module and the learning outcomes for these modules. These intended learning outcomes (ILOs) are only intended as a guide to the content of the course and the skills you will be expected to have gained by the end of the course.

The ILOs will provide you with an overview of the general competencies you should achieve by completing the module but they are not meant to be a detailed, itemised list of everything that appears in a module so should not be used as the basis of revision.

Similarly, not all learning outcomes will necessarily be tested.
Module CH2005 Bifunctional Molecules

Convenor: Dr Stuart
Lecturers: Prof. Cullis, Dr Stuart
No. of lectures: 20 First Semester
Course credits: 10

**Aims:** The main aim of this course is for the student to gain familiarity with a range of key reactions facilitating the elementary design of organic syntheses, including amino acids and peptides, as well as further developing skills in the application of NMR spectroscopy in organic chemistry.

**Learning Outcomes:**

**Subject knowledge:** at the end of this module students should be able to:

- Explain the acidity of C-H bonds and how this is affected by having two functional groups on the carbon atom.
- Explain how carbon-carbon bonds can be formed from carbanions and electrophilic molecules, and apply this chemistry to propose effective syntheses of medicinally important molecules.
- Describe the principal routes to the synthesis of amino acids and peptides and the structure determination of peptides and proteins.
- Be able to explain the fundamental principles of $^1$H and $^{13}$C NMR spectroscopy and to interpret and predict the spectra of simple organic molecules.

**Key skills:** at the end of this module students should be able to:

Obtain new information from textbooks, describe relevant chemistry and discuss it with peers and teachers, solve problems.

**Methods:** Set text(s), lectures, example problems, problem solving workshops, tutorials and marked work.

**Assessment:** Continuous Assessment (15%); 2 hour end of semester examination (75%); marked tutorial work (10%). The examination tests knowledge, understanding and problem solving ability for the material covered in the lectures. Formative feedback is provided through the marked tutorial work and workshops.

**Recommended Texts**


www.oxfordtextbooks.co.uk/orc/clayden2e/


**Further Reading**

P. R. Jenkins, Organometallic Reagents in Synthesis, Oxford [547.05JEN].

S. Warren, Chemistry of the Carbonyl Group, Wiley. The carbonyl group figures prominently in much synthetic, mechanistic and natural product chemistry. This program provides a particularly useful background to the following item. Strongly recommended. [547.43WAR].

S. Warren, Designing Organic Synthesis, Wiley. This program is strongly recommended for use by Level 2 and Level 3 students. [547.2WAR].

**Other information**

Interactive learning techniques are used throughout this course. Students should be prepared to learn the material as they go along.
Module CH2006 Organometallic Chemistry

Convenor: Dr Solan
Lecturers: Dr Solan, Prof. Hope
No. of lectures: 20 Second semester
Course credits: 10

Aims: This course aims to provide students with an understanding of the main principles of organometallic chemistry and the synthesis, structure and reactivity of organometallic complexes.

Learning Outcomes:
Subject knowledge: at the end of this module students should:
- Know the methods of preparation, relative stability, bonding and reactivity of metal-carbonyls, -alkyls, -carbenes, -hydrides; as well as alkene, diene, allyl, cyclopentadienyl and benzene complexes.
- Know and be able to identify the basic reaction types, substitution (ligand dissociation and ligand association), oxidative addition, migratory insertion, reductive elimination, β-hydride elimination, α-elimination and salt elimination.
- Be able to use spectroscopic methods in the characterisation of organometallic species.
- Know the 18 electron rule (EAN) and be able to apply it.
- Students should be able to select or predict the most suitable spectroscopic or structural methods for the characterisation of a range of organometallic complexes.

Key skills: at the end of this module students should be able to:
Obtain new information from textbooks, describe relevant chemistry and discuss it with peers and teachers, solve problems. Be able to assign, predict and interpret spectroscopic data for organo-metallic compounds.

Methods: Set text(s), lectures, example problems, group problem solving problem classes, tutorials, marked work.

Assessment: Continuous assessment open-note examination, 60 min. (15%): this will test unseen problem solving, data interpretation and information retrieval on specific topics; marked tutorial work (10%); end of semester examination 2 hr answering all 3 questions (75%): descriptive overviews of specific topics, unseen problem solving, data interpretation.
Marked tutorial problem sheets and continuous assessment scripts will provide formative feedback.

Recommended Texts
Either: M. Bochmann, Organometallics 1, OUP [547.05BOC] and M. Bochmann, Organometallics 2, OUP [547.05BOC].
or: A. F. Hill, Organotransition Metal Chemistry, RSC

Further Reading
Ch. Elschenbroich and A. Salzer, Organometallics: a concise introduction, VCH, [547.05ELS].
D. Nicholls, Complexes and First-Row Transition Elements, Macmillan [546.6NIC].
R.H. Crabtree, Organometallic Chemistry of the Transition Metals, Wiley [547.05CRA] and short loan.

Other information
The course builds on knowledge gained in CH1006 concerning simple electron counting, crystal field and MO treatments of bonding in transition metal complexes and that gained during CH2010 to interpret spectroscopic and structural data for organometallic complexes throughout the course, with a particular emphasis on multinuclear NMR and IR spectroscopy.
Module CH2007 Physical Chemistry of Colloids

Convenor & Lecturer: Dr Evans
No. of Lectures: 20 First Semester
Course Credits: 10

Aims: The aim of this module is to introduce the student to some basic concepts of transport in solution, colloids and electrophoretic techniques and their applications.

Learning Outcomes:
Subject knowledge: At the end of this module students should:
- Be able to distinguish the different ways a species can be transported through a solution.
- Explain the factors that affect ion migration.
- Be able to calculate various parameters associated with ion migration and diffusion.
- Identify how to characterise a colloidal dispersion.
- Describe what a colloid is.
- Describe how gravitational factors and Brownian motion control colloidal stability.
- Explain how the size and shape of colloidal particles can be measured and how the different techniques compare.
- Be able to describe the nature of different interactions (e.g., van der Waals) occurring between colloidal particles.
- Be able to describe the role attractive forces and repulsive forces have on colloidal stability.
- Identify the different ways in which a colloidal particle can obtain a charge.
- Discuss the advantages and disadvantages of the main models used to describe the electrical double layer.
- Describe the formation of a normal micelle and calculate thermodynamic properties associated with the formation of micelles.
- Outline the different applications of surfactants.
- Detail the principles of viscosity measurements and how measurements can be related to polymer mass.
- Describe the physical processes involved in electrophoresis and other electrokinetic phenomena.

Key Skills: at the end of this module students should be able to:
Obtain new information from textbooks and other sources, describe relevant chemistry and discuss it with peers and teachers, solve numerical problems, problem solving, group skills, written and oral communication.

Methods: Set text(s), lectures, example problems, problem solving workshops, tutorials and marked work.
Assessment: Continuous assessment (15%); 2 hr end of semester examination (75%); marked tutorial work (10%) and workshops to provide informative feedback.

Recommended Texts:

Further Reading:
R.J. Hunter, Introduction to Modern Colloid Science, OUP, Oxford, 1993
P.C. Himenz and R. Rajagopalan, Principles of Colloid and Surface Chemistry, Marcel Dekker, New York, 1997 [541.345 HIE]
Module CH2009 Chemistry of Rings

Convenor: Dr Stuart
Lecturers: Dr Stuart & Dr Blackburn
No. of lectures: 20 Second Semester
Course credits: 10

Aims: This module deals with two major topics. The first is the conformation and chemistry of alicyclic systems, that is, cyclic (3- to 8-membered) hydrocarbons and their derivatives. The second is the special chemistry and reactivity of aromatic hydrocarbons and their derivatives. The module introduces a number of fundamentally important concepts upon which many of the ideas underpinning courses in Year 3 and 4 are built.

Learning Outcomes:
Subject knowledge: at the end of this module students should be able to:
  • Represent important conformations of alicyclic systems (especially 6-membered).
  • Analyse the outcomes of reactions in terms of conformational equilibria and stereoelectronic requirements.
  • Explain the importance of ring strain in the synthesis and reactions of alicyclic systems.
  • Draw accurate arrow-pushing mechanisms for electrophilic and nucleophilic aromatic substitution reactions. Apply mechanistic understanding to explain how a substituent will affect the regioselectivity and rate of an aromatic substitution reaction.
  • Be able to explain the differences in reactivity between 5 and 6 membered (plus derivatives) heteroaromatics and carbocyclic aromatics.
  • Describe the structures, reactivity and synthesis of important heteroaromatic compounds.
  • Propose effective synthetic routes to heteroaromatic molecules.

Key skills: at the end of this module students should:
Have the ability to obtain new information from textbooks, describe relevant chemistry and discuss it with peers and teachers, solve problems.

Methods: Set text(s), lectures, example problems, workshops, tutorials and marked work.

Assessment: Tutorial work (10%); Continuous assessment (15%); 2 hour end of semester examination (75%).
The examination tests knowledge, understanding and problem solving ability for material encountered in lectures and tutorials. Formative feedback is provided through the marked tutorial work and workshops.

Course text
www.oxfordtextbooks.co.uk/orc/clayden2e/

Recommended Text
M. Grossel, Alicyclic Chemistry, Oxford. [547.5GRO]
M. Sainsbury, Aromatic Chemistry, Oxford [547.6SAI]
D.T. Davies, Aromatic Heterocyclic Chemistry, Oxford [547.59DAV]
These are all small but very useful Oxford Primers aimed at students requiring a rather more detailed treatment than is found in introductory texts like McMurry.

Other information
A set of molecular models (as used at Level 1) is essential for alicyclic chemistry (and can be used in examinations).
Module CH2010 Molecular Spectroscopy

Convenor/Lecturer: Prof. Ellis
No. of lectures: 20 First semester
Course credits: 10

Aims: This module aims to develop students’ understanding of the principles of important techniques in molecular spectroscopy and how they derive from basic ideas in quantum mechanics. The focus is on the underlying physical basis of rotational, vibrational, electronic and magnetic resonance spectroscopy. The link between molecular symmetry and spectroscopic information will also form an important part of the module.

Learning Outcomes:
Subject knowledge: at the end of this module students should be able to:
- Describe the arrangement of vibrational and rotational quantum states for simple molecules, especially diatomics.
- Explain the underlying principles of molecular vibrations and vibrational spectroscopy including anharmonicity, isotopic labelling and rotational structure.
- Calculate spectroscopic constants such as vibrational frequencies and rotational constants from fundamental properties of molecules.
- Recognise elements of symmetry and use these to determine point groups of molecules.
- Use group theory to determine irreducible representations for vibrations of molecules and hence predict the number of infrared and Raman spectra active stretching vibrations.
- Describe the principles and applications of electronic spectroscopy.
- Know the underlying physical basis of nuclear magnetic resonance (NMR) spectroscopy.

Key skills: at the end of this module students should be able to:
- Obtain new information from textbooks, describe relevant chemistry and discuss it with peers and teachers, solve problems.

Methods: Set text(s), lectures, example problems, group problem solving workshops, tutorials, marked work.
Assessment: Online multiple choice test (15%); marked tutorial work (10%); 2 hr end of semester examination (75%), 3 questions, no choice.
Marked problems from the tutorials provide formative feedback. Informal feedback is also provided within the problem-solving workshops. The written examination assesses the learning, understanding and application of the knowledge and problem-solving elements arising from the lectures, further reading, tutorials and workshops.

Recommended Text
Group Theory Tables, University of Leicester

Further reading
A. Vincent, Molecular Symmetry and Group Theory, Wiley, 1985 [541.22VIN].

Other information
This module builds upon basic principles of molecular shapes and molecular orbitals and spectroscopy (CH1000). The significant novel concepts and problem solving aspects of the course are approached sequentially through lectures, example problems, workshops, marked tutorials, marked continuous assessment and examination.
Module CH2011 Kinetics and Mechanism

Convenor: Dr Lowe
Lecturers: Dr Lowe and TBC
No. of lectures: 20 Second semester
Course credits: 10

Aims: The aim of this module is to provide:
(i) an appreciation of the way in which kinetic data can be analysed and techniques can be applied to the study of various chemical reactions and reaction mechanisms;
(ii) basic concepts for the theoretical description of chemical kinetics.

Prerequisite: CH1007 Thermodynamics and Kinetics, level 1 maths lectures and CH1006 Coordination Chemistry.

Please note: This module builds strongly on the level 1 physical chemistry and maths modules. A thorough knowledge of the course material from all previous chemical kinetics lectures is essential.

Intended Learning Outcomes:
(a) Subject knowledge: at the end of this module students should be able to:
• Manipulate kinetic data to extract key parameters such as rate constant, activation energy and reaction order.
• Be able to deduce a rate law and a mechanism for a reaction from experimental data.
• Discuss various experimental methods for determination of reaction rates and their limitations for studying kinetics and mechanism of a particular reaction.
• Describe the main features of associative and dissociative substitution reactions.
• Interpret activation parameters in mechanism.
• Describe the mechanisms of simple redox reactions on a qualitative and quantitative level.
• Derive a mathematical description for complex mechanisms such as reversible reactions, consecutive reactions and concurrent reactions and apply it to experimental data.
• Explain the principles of collision theory, Lindemann theory and transition state theory and interpret experimental results in the context of these theories.

(b) Transferable skills: this module aims to improve the student’s skills in:
• Manipulation, graphical representation and interpretation of experimental data.
• Mathematical description of chemical theory.
• Derivation of chemical theory from first principles.

Methods: 20 Lectures, 2 tutorials, 3 group problem solving workshops, example problems (Blackboard quizzes), revision lectures/workshops on applied maths, discussion board forum, marked work (see assessment).

Assessment: 2hr end of semester examination (75%); one mid-term computer test (15%); marked tutorial work (10%).

Further reading: All essential material will be provided on Blackboard. The following textbooks are recommended to students who would like to engage deeper with the subject.
Module CH2013 Science Communication and Career Skills

Convenor: Dr Williams
Lecturers: Dr Dylan Williams + Careers Service
No. of lectures: 10 Hours First Semester/10 Hours Second Semester
Course credits: 5

Aims:
This module aims to give students experience of communicating scientific content to a range of audience types (including the general public and peers) in using the approaches adopted by professional chemists. This module will also provide students with focussed guidance on how to search and apply for jobs. Students will gain experience of how to write CVs and application letters customised for a range of different type of jobs.

Learning Outcomes/Key Skills:

Subject knowledge: at the end of this module students should be able to:

- Identify and research scientific concepts of interest to a defined target audience and prepare media resources that will communicate these concepts in an effective way.
- Create, review and edit written scientific content suitable for a range of audiences (including writing journal articles and job applications).
- Proof-read scientific reports and papers.
- Work as part of a team on an open-ended scientific problem
- Give an oral presentation on a scientific concept.
- Produce a high standard CV and application letter for a variety of job scenarios.
- Reflect on subject specific and transferable skills development during their degrees and careers.

Methods:

- Workshops on how to communicate science using written and oral means (including proof reading scientific articles and writing and peer-reviewing journal articles).
- Workshops on career skills (including writing CVs and application letters).

Assessment:
Careers continuous assessment (CV writing, application letter exercises and articulating your skills in the recruitment process exercise) (30%); problem-based learning group exercise (30%); science communication continuous assessment (proof reading task and abstract/title writing task) (40%).

Recommended Text:
Study and Communication Skills for the Chemical Sciences (2nd edition), Tina Overton, Stuart Johnson and Jon Scott, Oxford University Press, 2015
Module CH2021 Polymer Chemistry

Convenor/Lecturer: Dr Whitcombe
No. of lectures: 20 Second Semester
Course credits: 10

Aims:
The aim of this module is to give students an introduction to polymeric materials. It will explain the methods by which polymers are made, how they are characterised and how their method of manufacture affects their physical properties. It will also explain how the chemical and physical properties of these materials affect their application.

Learning Outcomes:
Subject knowledge: at the end of this module students should:

- Know about the methods for industrial production and characterization of polymers and their properties, e.g. glass transition temperature, and how to modify these properties.
- Know how to classify polymers on the basis of their structure, properties, or origin.
- Know the mechanisms of radical, cationic and anionic polymerization, some polycondensation processes and methods for cross-linking.
- Be able to recognise repeat units of polymers and hence predict reasonable routes to them.
- Know how kinetics and thermodynamic factors affect polymerisation reactions.
- Know the application of a wide range of polymers and appreciate how their structure affects their properties.
- Know how polymer molar mass is determined and calculated.

Key skills: at the end of this module students should be able to:

Obtain new information from textbooks and the web, describe relevant chemistry and discuss it with peers and teachers, solve problems.

Methods: Set text(s), lectures, example problems, workshops, marked work.

Assessment: 2 hr examination (75%); continuous assessment (25%) comprising a mid-term test and a group assignment. The written examination assesses the learning and understanding of the concepts and knowledge described above, together with abilities in written communication and problem solving. Marked problems from the workshops provide formative feedback.

Recommended Text

Further reading


G. Challa, Polymer Chemistry, Ellis Horwood, 1993 - this book is available in the library but is out of print.
Module CH2023 Materials Science

Convenor: Prof. Abbott
Lecturers: Prof. Abbott, Prof. Ryder
No of lectures: 20 First Semester
Course credits: 10

Aims: The generic aims of this module are to introduce basic concepts of material science covering mostly metallic and inorganic materials although there will be some discussion of natural materials such as leather and wood. The course aims to introduce the fundamental concepts of length-scales together defects to show how material preparation affects the properties of a material. The course also introduces the application of advanced materials to aerospace components and optoelectronic devices.

Learning outcomes:

Subject knowledge: At the end of this module students should be able to:

- Understand the terminology of materials mechanics.
- Understand the strength of materials based upon a knowledge of molecular structure.
- Know how alloys are formed and how their properties depend upon composition.
- Know some basic methods for polymer synthesis.
- Understand basic effects of polymer structure upon their physical properties.
- Understand the basics of corrosion.
- Appreciate how defects on different length-scales affect mechanical properties.
- Describe the science behind the application of anti-wear, anti-corrosion and thermal barrier coatings
- Explain what a conducting polymer is and describe how it is used

Key Skills:

- At the end of this module students should be able to:
  - Research topics using a variety of sources (textbooks, online).
  - Describe relevant chemistry with their peers and teachers.
  - Summarise information
  - Solve scientific problems.

Methods: Set text(s), lectures, structures problems, workshops and marked work.

Assessment: Continuous assessment (10%) Poster (15%); end of semester examination (2 hr) (75%).
Module CH2040 Introduction to Analytical Chemistry

Convenor: Dr Evans
Lecturers: Dr Evans, Prof. Hillman
No of lectures: 20 First Semester
Course credits: 10

Aims: The generic aims of this module are to introduce basic concepts of analytical chemistry, of instrumental methods and of the processing and assessment of analytical data. Specific aims are to apply these methods in the context of particular techniques (such as titrimetry, gravimetry and spectrophotometry) relevant to forensic science.

Learning outcomes:
Subject knowledge: at the end of this module students should:
- Explain the principles of sampling, calibration and statistical treatment of analytical data.
- Apply the method of error propagation to evaluate errors associated with analytical measurements.
- Be able to describe the key components of analytical instrumentation.
- Outline the role chemical analysis has in forensic investigation.
- Describe the principles of titrimetric methods (acid/base, complexometric, redox, precipitation) and the underlying solution chemistry.
- Demonstrate how titrimetric methods can be use in analytical chemistry.
- Describe the principles of gravimetric and thermoanalytical methods.
- Demonstrate how gravimetric and thermoanalytical methods can be used in analytical chemistry.
- Describe the principles of spectrophotometric (AAS, AES, XRF, ICP-MS) and related methods for elemental analysis.
- Demonstrate how spectrophotometric methods can be used in analytical chemistry.

Key skills: at the end of this module students should be able to:
- Obtain new information from primary literature, textbooks and other sources
- Select appropriate analytical methods
- Perform analytical calculations
- Perform tasks as part of a team in solving an analytical chemistry problem
- To plan and evaluate progress of a team project
- Negotiate an individual’s role within a team project
- Evaluate and present analytical data in a critical manner via a written report and an oral presentation

Methods: Lectures, directed reading, problem-based workshops, group work, marked work
Assessment: Continuous assessment (25%): small group literature research exercise resulting in oral presentation/written summary; end of the semester examination (75%).

Recommended Texts
D. A. Skoog, D. M. West, F. J. Holler and S. R. Crouch, Analytical Chemistry - An Introduction
D. A. Skoog, D. M. West and F. J. Holler, Fundamentals of Analytical Chemistry
R. P. Wayne, Chemical Instrumentation
G. Schwedt, the Essential Guide to Analytical Chemistry

Further Reading
D. A. Skoog, F. J. Holler, T. A. Nieman, Principles of Instrumental Analysis
D. C. Harris, Quantitative Chemical Analysis
S. P. J. Higson, Analytical Chemistry

Other Information: This module provides principles that will be valuable for students taking the Bioanalytical Chemistry module CH2041.
Module CH2041 Bioanalytical Chemistry

Convenor: Dr Piletska
Lecturers: Dr Piletska + Dr Lumley (GlaxoSmithKline)
No of lectures: 20 Second semester
Course Credits: 10

Aims: the aim of this module is to introduce some basic concepts of analytical chemistry and their application to biological systems. The course will include examples of bioanalytical chemistry in forensic and pharmaceutical analysis.

Learning outcomes:

Subject knowledge: at the end of this module students should be able to:
- Discuss the role of chemical analysis in pharmaceutical chemistry and forensic investigation.
- Describe the main methods of ionisation in mass spectrometry.
- Describe and explain fragmentation patterns of the major functional groups and the application to structural determination.
- Discuss the uses of mass spectrometry for forensic and pharmaceutical analysis.
- Recognise the importance of HPLC, GC and capillary electrophoresis in analytical chemistry.
- Explain fluorescence and describe its application in analytical and forensic analysis.
- Describe the structure of DNA, translation, transcription and the role of RNA.
- Discuss PCR and its uses.
- Describe and explain the genetic code.
- Describe the use of DNA fingerprinting in forensic science.

Key skills: at the end of this module students should be able to:

Obtain new information from text books and other sources, discuss it with peers and teachers, solve problems.

Methods: Set text(s), lectures, example problems, problem solving workshops.

Assessment: Continuous assessment (15%); workshop (10%); examination at end of semester (75%) 2 hours.

Recommended Text
Andreas Mainz, Nicole Pamme, Dimitri Iossifidis, Bioanalytical Chemistry, ICP [572.36 MAN]
Susan R. Mikkelsen, Eduardo Cortón, Bioanalytical Chemistry, Wiley. [E-BOOK]
Seamus P.J. Higson, “Analytical Chemistry”, OUP. [543 HIG]

Further Reading
Douglas A. Skoog, F. James Holler, Timothy A. Nieman, “Principles of Instrumental Analysis”, [543.08 SKO]
Joseph R. Lakowicz, “Principles of Fluorescence Spectroscopy”, [543.08584 LAK]
Module CH2071/CH2073 Chemistry Practical – Part A and Chemistry Practical (Pharmaceutical) – Part A

Convenor: Dr Blackburn
Course Staff: Prof. Davies, Dr Blackburn, Dr Hudson, Dr Piletska & Dr Stuart
No. of Weeks: 11 First Semester
Course credits: 15 (CH2071); 10 (CH2073)

Module CH2073 (10 credits) – has the same aims and outcomes as CH2071 (see below) but some experiments will be shortened or omitted.

Aims: The aims of this module are to provide practical experience of a number of important separation, purification and analytical techniques in chemistry.

Learning Outcomes:

Subject knowledge: at the end of this module students should be able to:

- Advise and carry out procedures for separation of neutral, acidic and basic organic molecules.
- Carry out vacuum and steam distillation and chromatography.
- Interpret uv-visible, infrared and mass spectra data.
- Make up standard solutions and use these to measure extinction coefficients.
- Use uv-visible and atomic absorption spectroscopy to analyse iron content in a vitamin tablet.
- Use infrared and uv-visible spectroscopy to investigate bonding in coordination complexes.
- Understand the requirements of a scientific abstract and be able to write abstracts for the experiments.
- Decide which method(s) is most appropriate for the separation and purification of components of a mixture of chemicals.
- Use ChemDraw to present chemical structures and reaction schemes.
- Analyse physical data and interpret results.
- Assess potential sources of error and calculate the errors associated with a measurement.

Key Skills: at the end of this module students should be able to:

- Record, analyse and present data in appropriate formats.
- Write abstracts.
- Use appropriate software (e.g. ChemDraw) to draw structures of organic molecules.
- Use computer programs to analyse experimental data.

Methods: Lectures, workshops, practical classes with appropriate demonstration.
Assessment: Continuously assessed lab work/reports (100%).
Module CH2072/CH2074 Chemistry Practical – Part B and Chemistry Practical (Pharmaceutical) – Part B

Convenor: Dr Blackburn
Course Staff: Dr Stuart, Dr Evans & Dr Blackburn
No. of Weeks: 10 Second Semester
Course credits: 20 (CH2072); 15 (CH2074)

Module CH2074 (15 credits) – has the same aims and outcomes as CH2072 (see below) but some experiments will be shortened or omitted.

Aims: This module aims to provide students with a wide range of practical skills in Organic and Inorganic Synthesis and the use of appropriate techniques to characterise organic and inorganic compounds. The reactions covered are connected to lecture courses wherever possible. The writing of accurate lab reports and mechanistic interpretations of the reactions carried out are also key skills covered in the course. The module will also provide students with practical skills relevant to their 2nd year physical chemistry modules; different techniques such as recording measurements, estimating errors, data analysis and interpretation of results and graphical analysis.

Learning Outcomes:

Subject knowledge: at the end of this module students should:

- Know, understand and be able to apply the practical and spectroscopic procedures involved in the study of inorganic, coordination and organometallic chemistry, including melting points, infrared and uv-visible spectroscopy, magnetic moments, NMR spectroscopy and mass spectrometry.
- Work with a moisture sensitive reagent.
- Isolate a product by solvent extraction.
- Purify by recrystallisation.
- Work with a poisonous substance.
- Deal with a reaction which gives off water soluble dangerous fumes.
- Carry out distillations at various pressures and steam distillation.
- Be able to prepare appropriate scientific reports describing experimental work and results and understand the mechanism of the reactions carried out.
- Be able to present analytical and spectroscopic data in easy to interpret formats.
- Be able to use a variety of techniques for making kinetic, thermodynamic and spectroscopic measurements.
- Be able to analyse physical data and interpret results.

Key Skills: at the end of this module students should:

- Be able to record, analyze and present data in an appropriate formats.
- Develop good laboratory practices.
- Become familiar with synthetic methodologies and strategies used in inorganic and organic chemistry and to become familiar with various types of apparatus and spectroscopic/analytical equipment.
- Be used to team and small group working.
- Be able to use computer programs to analyse experimental data.

Methods: Lectures/pre-labs, workshops, practical classes with appropriate demonstration.

Assessment: Continuously assessed laboratory pre-lab worksheets, work/data/reports (100%).

References: