Chemistry Department Undergraduate Level 1

Course Handbook

2016 - 2017

- Chemistry (USA/Industry/EU)
- Chemistry with Forensic Science (USA/Industry/EU)
- Pharmaceutical Chemistry (Industry)
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#### Semester 1: 26 September – 20 January 2017

<table>
<thead>
<tr>
<th>Month</th>
<th>Week</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>Monday 26th</td>
<td>WEEK 1 Autumn Term &amp; 1st Semester begins</td>
</tr>
<tr>
<td>October</td>
<td>Monday 3rd</td>
<td>WEEK 2</td>
</tr>
<tr>
<td></td>
<td>Monday 10th</td>
<td>WEEK 3</td>
</tr>
<tr>
<td></td>
<td>Monday 17th</td>
<td>WEEK 4</td>
</tr>
<tr>
<td></td>
<td>Monday 24th</td>
<td>WEEK 5</td>
</tr>
<tr>
<td></td>
<td>Monday 31st</td>
<td>WEEK 6</td>
</tr>
<tr>
<td>November</td>
<td>Monday 7th</td>
<td>WEEK 7</td>
</tr>
<tr>
<td></td>
<td>Monday 14th</td>
<td>WEEK 8</td>
</tr>
<tr>
<td></td>
<td>Monday 21st</td>
<td>WEEK 9</td>
</tr>
<tr>
<td></td>
<td>Monday 28th</td>
<td>WEEK 10</td>
</tr>
<tr>
<td>December</td>
<td>Monday 5th</td>
<td>WEEK 11 Autumn Term ends Friday 9th December</td>
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**CHRISTMAS VACATION (4 weeks)**

<table>
<thead>
<tr>
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<th>Event</th>
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</thead>
<tbody>
<tr>
<td>January</td>
<td>Monday 9th</td>
<td>WEEK 12 Spring Term and Exams begin</td>
</tr>
<tr>
<td></td>
<td>Monday 16th</td>
<td>WEEK 13 Exams end Friday 20th January</td>
</tr>
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</table>

#### Semester 2: 23 January 2017 – 23 June 2017

<table>
<thead>
<tr>
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<th>Week</th>
<th>Event</th>
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<tbody>
<tr>
<td>January</td>
<td>Monday 23rd</td>
<td>WEEK 14 Semester 2 begins</td>
</tr>
<tr>
<td></td>
<td>Monday 30th</td>
<td>WEEK 15</td>
</tr>
<tr>
<td>February</td>
<td>Monday 6th</td>
<td>WEEK 16</td>
</tr>
<tr>
<td></td>
<td>Monday 13th</td>
<td>WEEK 17</td>
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<tr>
<td></td>
<td>Monday 20th</td>
<td>WEEK 18</td>
</tr>
<tr>
<td></td>
<td>Monday 27th</td>
<td>WEEK 19</td>
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<tr>
<td>March</td>
<td>Monday 6th</td>
<td>WEEK 20</td>
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<tr>
<td></td>
<td>Monday 13th</td>
<td>WEEK 21</td>
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<tr>
<td></td>
<td>Monday 20th</td>
<td>WEEK 22 Spring Term ends Friday 24th March</td>
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**EASTER VACATION (5 weeks)**

<table>
<thead>
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<tr>
<td>May</td>
<td>Monday 1st</td>
<td>WEEK 23 Summer Term begins*</td>
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<tr>
<td></td>
<td>Monday 8th</td>
<td>WEEK 24 Revision Week</td>
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<tr>
<td></td>
<td>Monday 15th</td>
<td>WEEK 25 Exams begin Monday 15th May</td>
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<td></td>
<td>Monday 22nd</td>
<td>WEEK 26</td>
</tr>
<tr>
<td>June</td>
<td>Monday 29th</td>
<td>WEEK 27 Exams end Friday 2nd June</td>
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<tr>
<td></td>
<td>Monday 5th</td>
<td>WEEK 28</td>
</tr>
<tr>
<td></td>
<td>Monday 12th</td>
<td>WEEK 29</td>
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<tr>
<td>August/September</td>
<td>Monday 19th</td>
<td>WEEK 30 Summer Term ends Friday 23rd June</td>
</tr>
<tr>
<td></td>
<td>Monday 4th</td>
<td>Resit Exams begin Monday 4th September</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resit Exams end Saturday 9th September</td>
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</tbody>
</table>

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

#### TERM DATES AT A GLANCE

<table>
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<th>Term</th>
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<tbody>
<tr>
<td>Autumn Term</td>
<td>26 September 2016 – 9 December 2016</td>
</tr>
<tr>
<td>Spring Term</td>
<td>9 January 2017 – 24 March 2017</td>
</tr>
<tr>
<td>Summer Term</td>
<td>1 May 2017* – 23 June 2017</td>
</tr>
</tbody>
</table>

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

It is pleasure to welcome you to the Department of Chemistry at the University of Leicester. You join a department which is renowned for the quality of its teaching and its highly rated research. We pride ourselves on being a friendly department whose staff are always willing to help and you should never feel reticent about approaching a particular member of staff for advice and assistance.

This handbook provides a great deal of information not only about the content of your course, but also about issues such as welfare, university regulations and your responsibilities as a student. There is quite a lot to read here but it is important that you do read it all at the start of your course so that you are familiar with key issues. If you are not clear about something in this handbook, a good place to start for clarification is to ask your personal tutor.

Arriving at university for the first time is always exciting but is also a step into the unknown. Many of you will settle in quickly and others will take a little more time to adapt to the change in lifestyle and the nature of university studying. However, I hope and expect that you will develop knowledge and skills that will prepare you for an exciting future. It is also my sincere hope that you enjoy your time here and look back on your undergraduate years with pride in your achievements and fondness for the university.

With best wishes,

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
**Induction**

**An Induction for BSc/MChem Degrees**

During the first week of Semester One there are no module lectures or classes in Chemistry for first-year students. Students participate in induction programmes over the period between the Wednesday and Friday of the first week of term, following induction in the Department of Chemistry on Monday and Tuesday and registration with the University via online computer registration.

The induction programme introduces students to staff, tutors and the working methods of the Department. Issues relating to study skills, learning and teaching (including computer-based learning) are addressed in a variety of ways.

*All students are expected to attend these sessions.*

Induction programme timetables are distributed at registration to new students on undergraduate degree programmes.

**The Induction Programme (for students newly joining the Department)**

**Registration**

The University’s Registry will already have sent the instructions to you about how to register but we hope to provide the important elements below.

**Step 1: Online Registration**

You need to register for your degree programme online by proceeding to this link https://register.le.ac.uk. Instructions as to how to complete the process are available at http://www2.le.ac.uk/offices/sas2/registration and includes further information and contact information if you should need any help or advice.

As a student of the University, you are provided with a computer account that gives you an e-mail address, access to a wide range of resources and computing facilities both on and off campus. On completion of the registration process, you are provided with the computer account, an e-mail and a SMS message confirming your registration. This may take up to 24 hours after registration. Please ensure you remember your login and password. You must complete online registration before you can attend the induction with the Department.

**Step 2: Central Registration**

This is applicable to INTERNATIONAL STUDENTS ONLY: (those students who pay the international fee level). Once you have completed online registration, you must report to University Visa Checkpoint in the Charles Wilson Sports Hall before proceeding to Departmental induction (step 3). When you have to do this is detailed in the ‘Visa Checkpoint for International (non-EU) students’ section of the guide on the following link: http://www2.le.ac.uk/offices/sas2/registration/centralregistration/register-centrally.

**Step 3: Departmental Induction**

**Monday 26th and Tuesday 27th September 2016: Induction with the Department**

PLEASE NOTE THAT YOU MUST COMPLETE ONLINE REGISTRATION BEFORE YOU CAN ATTEND THE INDUCTION WITH THE DEPARTMENT

All BSc and MChem students should report to the Department in the George Porter Chemistry Building Lecture Theatre A during the time listed in the letter you will have received from the Level 1 Tutor in September to complete your induction in the Department. Please note that you will not be able to participate in the induction programme in the Department outside of the times advertised. A map of the Campus can be found here http://www2.le.ac.uk/maps.
Please ensure you have completed the online registration process before arriving. If you do not, you will not be able to participate in the induction programme. To speed up your induction, you can bring with you a copy of the e-mail or the SMS message the University of Leicester sent to you that confirms you have completed online registration, but this is not a requirement for you to participate in the induction programme.

The Induction Programme itself

Wednesday 28th September 2016 – Induction timetable commences

The induction programme provides you with an introduction to the University, the Library and the Department. You will learn more about your Degree programme, the help and support available and the general facilities on offer at the University. Training will also be provided in study/research techniques and computing skills.

The timetable will be circulated students and will also be posted on the Departmental television screen situated in the foyer of the Chemistry Building.

Freshers Fair and Student Societies

Freshers Fair

The University of Leicester Students’ Union organises a week-long activity during the first week of term to welcome you and to offer you the opportunity to join societies and associations. With over 200 groups and societies in the Union, there is something for virtually everyone! Further information is available from the Students Union (Percy Gee Building) or can be found at [http://leicesterunion.com/](http://leicesterunion.com/).

Any Further Questions

If you are unsure about any aspect of the above information, please feel free to contact a member of the Department’s Reception between 08:00 and 17:00 or by e-mailing chemadmin@le.ac.uk.

Special Equipment

At the start of your course you will be provided with a locker in the Chemistry department and a locker combination lock. You will need to pay a £10 deposit for this lock. The money will then be returned to you at the end of your course on receipt of your combination lock.

If you forget your lock combination please come to the departmental reception and one of the team will reset your lock for you.

You will be provided with a lab coat and a molecular modelling kit when you start your degree. You can collect these during your induction week in the Chemistry department (George Porter building).
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>Role</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Head of Department (HoD)</strong></td>
<td>Prof. Andrew Ellis</td>
</tr>
<tr>
<td><strong>Programme Co-ordinators and Tutors</strong></td>
<td></td>
</tr>
<tr>
<td>Chemistry (USA/Ind/EU)</td>
<td>Dr Sandeep Handa</td>
</tr>
<tr>
<td>Chemistry with Forensic Science (USA/Ind/EU)</td>
<td>Prof. Rob Hillman</td>
</tr>
<tr>
<td>Pharmaceutical Chemistry (Ind)</td>
<td>Dr Sandeep Handa</td>
</tr>
<tr>
<td>Erasmus Co-ordinator</td>
<td>Dr Antonio Guerreiro /Dr Sandeep Handa</td>
</tr>
<tr>
<td>Level 1</td>
<td>Dr Mark Lowe</td>
</tr>
<tr>
<td>Level 2</td>
<td>Dr Dylan Williams</td>
</tr>
<tr>
<td>Level 3</td>
<td>Dr Greg Solan</td>
</tr>
<tr>
<td>Level 4</td>
<td>Dr Sandeep Handa</td>
</tr>
<tr>
<td><strong>Officers &amp; Tutors</strong></td>
<td></td>
</tr>
<tr>
<td>Careers Tutor &amp; Personal Development Plan Co-ordinator</td>
<td>Dr Kal Karim</td>
</tr>
<tr>
<td>Special Needs Tutor (AccessAbility)</td>
<td>Prof. Paul Cullis</td>
</tr>
<tr>
<td>Director of MSc Postgraduate Admissions</td>
<td>Prof. Eric Hope</td>
</tr>
<tr>
<td>Senior Tutor</td>
<td>Prof. Andy Abbott</td>
</tr>
<tr>
<td>Head of Teaching</td>
<td>Dr Sandeep Handa</td>
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<tr>
<td>Postgraduate Tutor</td>
<td>Prof. Karl Ryder</td>
</tr>
<tr>
<td>Admissions Officer</td>
<td>Dr Richard Blackburn</td>
</tr>
<tr>
<td>Examinations Officer</td>
<td>Dr Andrew Hudson</td>
</tr>
<tr>
<td>Department Safety Officer</td>
<td>Dr Michael Whitcombe</td>
</tr>
<tr>
<td>Building Safety Supervisor/Technical Manager</td>
<td>Dr Dominic Banks</td>
</tr>
<tr>
<td>Plagiarism Officer</td>
<td>Dr Kal Karim</td>
</tr>
<tr>
<td>Outreach Officer</td>
<td>Dr Barbara Villa-Marcos</td>
</tr>
<tr>
<td>Library Liaison Officer</td>
<td>Dr Dylan Williams</td>
</tr>
<tr>
<td>Athena SWAN</td>
<td>Dr Alison Stuart</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>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>0.18</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>Dr James HODGKINSON</td>
<td>TBC</td>
<td>TBC</td>
<td>TBC</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>
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<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>
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<td>Phone Number</td>
<td>E-mail Address</td>
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<td>----------------------</td>
</tr>
<tr>
<td>Dr Elena PILESKA</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 PILESKY</td>
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</table>

**MC = Materials Centre**

**Administrative & Support Staff**

Day-to-day teaching and administrative enquiries – chemadmin@le.ac.uk

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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 lectures which take place in the theatres around the foyer.
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 problem-solving ability
- Improve ability to work in a team
- 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](http://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](http://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](http://leicesterunion.com/support/education)

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

Facebook – [https://www.facebook.com/talktoED](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
Languages at Leicester http://www2.le.ac.uk/departments/modern-languages/lal
Victoria Park Health Centre http://www.victoriaparkhealthcentre.co.uk
University Chaplaincy & Prayer Rooms for students http://www2.le.ac.uk/institution/chaplaincy

University Regulations

Senate Regulations (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) 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;

(See http://www.le.ac.uk/sas/regulations or http://www.le.ac.uk/sas/regulations/responsibilities for full details);

- 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 (1st, 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 main-stream 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, 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](http://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 to 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 in their second 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.

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](http://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:** the first week is used mainly for induction and is followed by 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. 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 workshops.


**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-regulation 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).

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 lectures, workshops, practicals, tutorials and all 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: www.le.ac.uk/sas/quality/personaltutor

Equal Opportunities

The Department’s Equal Opportunities officer is Professor Paul Cullis (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, Charles Wilson Building.
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.

Please see the following page for services on offer
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) 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
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!

When you arrive at Leicester 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 – lecture 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 & Earhtoil 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 Mark Lowe, the Tutor with special responsibility for all first 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/ld/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></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level 1 0%</td>
</tr>
<tr>
<td></td>
<td>Level 2 20%</td>
</tr>
<tr>
<td></td>
<td>Level 3 30%</td>
</tr>
<tr>
<td></td>
<td>Level 4 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></td>
<td>50 credits or more failed</td>
<td>Fail</td>
</tr>
<tr>
<td>&gt; 70%</td>
<td>120 credits at 70% or better, failed modules &lt; 40 credits</td>
<td>1st</td>
</tr>
<tr>
<td>67-69</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.

Progression to Level 2 for the Chemistry Degrees
If you pass all the modules, you automatically progress into Level 2 of the Honours Degree course. This would be the expectation of most students. MChem students are expected to have an overall mark of more than 50%. Your overall mark is the credit weighted average, i.e. a 10 credit module counts 10/120 towards your overall mark.
Compensation

If you do not pass all the modules, you are allowed a resit (except in practical modules CH1061/3 and CH1062/4 for which there are no resits) in the following September. The pass mark is 40% for practical modules and for CH1000, CH1002, CH1003, CH1006, CH1007 and CH1008. In the other modules, at the discretion of the examiners, a mark of less than 40% but greater than 35% may be compensated if your overall credit weighted average for the year is >40%:

What happens if you fail?

(a) If you fail a Practical Module 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.

(b) If you fail any other module (after any compensation) you must resit the module in September.

(c) If after resits you fail ≥20 credits your course will be terminated. However, in exceptional circumstances you may be allowed to resit the Level 1 course written exams without residence during the following year.

(d) If you fail ≤15 credits then, if you have passed everything else, you may proceed to Level 2, repeating the failed module(s) during your second year (you must pass then to continue).

(e) Note: for Chemistry with Forensic Science failure in Law or Forensic modules, or for Pharmaceutical Chemistry failure in CH1031 and CH1032 modules will mean you cannot continue on these courses – if your credit weighted average for the year is over 40%, you may be able to transfer to Chemistry.

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 (e.g. 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 1 modules for each degree

| CR = Credit Rating |  |  |  |
|--------------------|  |  |  |
| C = Core | O = Option |  |  |
| CR |  |  |  |

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>CR</th>
<th>USA</th>
<th>Forensic</th>
<th>Pharm</th>
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<tbody>
<tr>
<td>CH1000</td>
<td>Chemical Principles</td>
<td>15</td>
<td>C</td>
<td>C</td>
<td>C</td>
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<tr>
<td>CH1002</td>
<td>Organic Structure &amp; Functional Groups</td>
<td>10</td>
<td>C</td>
<td>C</td>
<td>C</td>
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<tr>
<td>CH1003</td>
<td>Maths for Chemists (Year)</td>
<td>10</td>
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<tr>
<td>CH1030</td>
<td>Introduction to Forensic Science (Year-long)*</td>
<td>10</td>
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<tr>
<td>CH1031</td>
<td>Pharmaceutical Chemistry Special Topics 1</td>
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<tr>
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<td>Chemistry Special Topics – Part A</td>
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<tr>
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<td>Chemistry Practical – Part A</td>
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<tr>
<td>CH1063</td>
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<td>10</td>
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<tr>
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<td>Introduction to Law and Legal Reasoning</td>
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**Semester 2**

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<th>Pharm</th>
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<tbody>
<tr>
<td>CH1003</td>
<td>Maths for Chemists (Year)</td>
<td>10</td>
<td>C</td>
<td>C</td>
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<tr>
<td>CH1006</td>
<td>Coordination Chemistry</td>
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<td>CH1007</td>
<td>Kinetics &amp; Thermodynamics</td>
<td>10</td>
<td>C</td>
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<tr>
<td>CH1008</td>
<td>Organic Reactivity &amp; Mechanism</td>
<td>10</td>
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<tr>
<td>CH1030</td>
<td>Introduction to Forensic Science (Year)*</td>
<td>5</td>
<td>C</td>
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<tr>
<td>CH1032</td>
<td>Pharmaceutical Chemistry Special Topics 2</td>
<td>15</td>
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<tr>
<td>CH1042</td>
<td>Chemistry Special Topics – Part B</td>
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<td>Chemistry Practical – Part B</td>
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<tr>
<td>CH1064</td>
<td>Chemistry Practical (Forensic) – Part B</td>
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<tr>
<td>LW1141</td>
<td>Criminal Justice System</td>
<td>10</td>
<td>C</td>
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<tr>
<td>Total Core Credits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>120</td>
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</tbody>
</table>

**NOTE:**

* Chemistry with Forensic Science students take the “Scientific Ethics, Reasoning and Communication” component of CH1041.
LEVEL 1 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 CH1000 Chemical Principles

Convenor: Prof Davies, Lecturers: Prof Davies, Dr Williams, No. of lectures: 20 First Semester
Course credits: 15

Aims and contents: The aim of this module is to reinforce students’ knowledge of the fundamental principles of chemistry. Topics covered include the nature of atoms, molecules and chemical bonds, the shapes of molecules and structures of solids, the periodic trends in physical and chemical properties of chemical compounds, basic concepts of quantum chemistry and spectroscopy.

Intended Learning Outcomes: (a) Subject knowledge: at the end of this module students should be able to:
- Describe the structure of an atom and deduce electron configuration with the help of the periodic table, appreciate the size of objects on a molecular and macroscopic scale.
- Compare the fundamental properties of gases, liquids and solids and of different bond types including covalent, ionic, metallic, coordinative and intermolecular interactions.
- Apply the VSEPR model to predict the shapes of simple molecules, describe chemical bonds using the valence bond and molecular orbital theory. Explain MO diagrams for simple molecules.
- Know the basic structures adopted by metals and simple ionic solids, and explain how structures can relate to properties, e.g. electrical conductivity, draw 2-D representations of 3-D molecules using usual chemical conventions, explain the coordinative bond based on the theory of Lewis acids and bases.
- Explain the theoretical basis of the periodic table and describe periodic trends in physical and chemical properties of the elements; be able to predict properties structures, bonding and reactivity for chemical compounds such as hydrides, halides and oxides.
- Describe the concept of wave particle duality and apply this concept to the description of chemical systems, critically evaluate models of atomic structure and deduce the relative strengths and weaknesses of different models.
- Explain the concept and consequences of energy quantisation in terms of both the Bohr and the particle in a one-dimensional box models, describe the shape and energy levels of atomic and simple molecular orbitals using wave equations, the Schrödinger equation and the LCAO-MO concept.
- Apply the Heisenberg Uncertainty Principle to determine the uncertainty in a measurement
- Draw shapes s, p, d and f orbitals and molecular orbitals formed from combinations of these orbitals.
- Outline the basic principles of spectroscopy in terms of absorption and emission of radiation, quantify spectroscopic processes using the Beer-Lambert law and the Boltzmann equation and explain how different parts of the electromagnetic spectrum can be used in analytical techniques.

(b) Transferable skills: at the end of this module students should be able to:
- Research new information from text books and websites, critically evaluate the work of others.
- Communicate science to various audiences using a range of methods, solve problems in chemistry by directed self-learning and discussions with peers and teachers.
- Visualise shapes in 3 dimensions based on 2 dimensional representations
- Manipulate graphical representations and interpret experimental data.

Methods: Lectures, example problems, tutorials, group problem solving workshops, tutorials, set texts, problem/context based learning, marked work.

Assessment: End-of-semester examination: Chemical Principles (70%) marked tutorials (10%); two mid-term computer tests (1 x 4%, 1 x 10%); problem/context based learning group work (6%). Both examinations test knowledge, understanding and chemical and numerical problem solving. Feedback is provided on tutorial work, PBL and mid-semester tests. To gain credit for the module, you must get at least 40% in the module overall.

Course Text (personal copies essential):

Further reading: The following textbooks are recommended to students who would like to engage deeper with the subject. Library shelf marks are given in [square brackets].
Module CH1002 Organic Structures and Functional Groups

Convenor: Dr Blackburn and Dr Handa
Lecturers: Dr Blackburn, Dr Handa, TBC
No. of lectures: 20 First semester
Course credits: 10

Aims: To understand the structure, reactivity and interconversions of a range of functional groups in Organic Chemistry and to rationalise their behaviour on the basis of reaction mechanisms. To establish a common language for representing and rationalising organic reactions through the use of line formulae and arrow-pushing.

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

- understand the structure, reactivity and interconversions of a range of functional groups in Organic Chemistry and to rationalise their behaviour on the basis of reaction mechanisms.
- establish a common language for representing and rationalising organic reactions through the use of line formulae and arrowpushing.
- describe organic structures and how they are determined by spectroscopic methods;
- explain the structure and reactivity of a range of important functional groups and the interconversions of these groups in the synthesis of organic compounds;
- explain the mechanism of reactions and how these are used as a means of classifying these reactions and predicting the results of new reactions;
- know the chemistry of the carbonyl group including the synthesis and reactivity of aldehydes and ketones, carboxylic acids and their derivatives (esters, amides, etc.);
- apply general mechanistic principles to explain the reactivity of and determine the products from reactions of carbonyl compounds.
- know the chemistry of amines;
- know the industrial importance and/or biological significance of some of the compounds studied.

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. Develop skills in organic mechanisms, use knowledge and understanding to predict new reactions, solve problems.

Methods: set text(s), lectures, example problems, group problem solving workshops, tutorials, marked work supported by Blackboard material.

Assessment: Tutorials (10%) and continuous assessment (15%); end of semester examination (75%).

To gain credit for the module, you must get at least 40% in the module overall.

Recommended Text(s):
Course Texts

Further reading: The following textbooks are recommended to students who would like to engage deeper with the subject. Library shelf marks are given in [square brackets].
Module CH1003 Maths for Chemists

Convenor: Dr Hudson
Lecturers: Dr Hudson, Dr Ball, Dr Guerreiro, Dr Yang
Semester: Semester 1 & Semester 2
Course credits: 10

Aims:
The aim of the module is to provide students with the mathematical skills required to understand degree-level concepts in chemistry, develop theoretical models for chemical processes and to be quantitative in the analysis of scientific data.

Intended Learning Outcomes:

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

• Rearrange, simplify and solve algebraic expressions
• Use SI units and SI multiplier prefixes (e.g. kilo, nano); convert quantities between different units; propagate units through chemical calculations; report the results of calculations to an appropriate number of significant figures
• Apply trigonometry, exponentials and logarithms in chemically-relevant problems
• Manipulate numerical data; display it in graphical form; extract information from graphical plots.
• Explain the significance of differentiation and integration and how these methods are relevant in a chemical context.
• Integrate and differentiate algebraic expressions and then apply the same methods to examples in thermodynamics and kinetics to obtain an insight into chemical behaviour.
• Construct and solve differential equations relevant to the topics of reaction kinetics, thermodynamics and quantum mechanics to obtain numerical information on a chemical property.
• Determine how the error in an experimental measurement will affect the uncertainty of a subsequent calculation

Transferable skills. This module aims to improve the student’s skills in:

• Understanding concepts presented in the literature which are developed using mathematical methods.
• Analysing experimental data to extract important information.
• Critically evaluating the results of practical work through determination of the significance of errors in an experimental measurement.
• Developing theoretical models for observed phenomena.

Methods: Topics will be introduced in workshops tailored to give students an initial understanding of the mathematical concepts. This will be followed by independent study in advance of a feedback lecture session in which the solutions to the mathematical problems will be presented. There will be 10 workshop sessions and 10 feedback lectures in each semester.

Assessment: 2 x End of Semester examinations; one in January and one in May/June examination periods (each examination has a weighting of 50% for the module). [NOTE: You must pass >40% in each exam otherwise you will fail the module.]

Further reading:

Applied mathematics textbook containing examples of relevant chemical problems.
Module CH1006 Coordination Chemistry

Convenor: Dr Lowe
Lecturers: Dr Lowe, Dr Solan
No. of Lectures: 20 Second semester
Course credits: 10

Aims: To give students the background to the synthesis, structure and basic reactivity of transition metal complexes, their use and methods for investigating their properties.

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

• Calculate oxidation states and dⁿ configurations of transition metal complexes.
• Identify the common types of ligand and methods of complex preparation.
• Describe the bonding in transition metal complexes using an ionic (crystal field theory) and covalent (molecular orbital theory) model.
• Calculate, and explain the periodic consequences of, crystal field stabilisation energies.
• Use bonding models to explain and predict magnetic and spectroscopic properties of transition metal complexes.
• Predict the geometries of complexes and identify the possibility of molecular distortions and isomerism.
• Explain the complex nature of certain ions in solution, including their thermodynamic and kinetic stability.

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, Blackboard quizzes.

Assessment: Tutorials (10%), course test (15%); end of semester examination, answer all questions (75%): general descriptive summaries, unseen problem solving and data interpretation. Marked tutorial problem sheets and course test will provide formative feedback.

To gain credit for the module, you must get at least 40% in the module overall.

Recommended Text
M. J. Winter, d-Block Chemistry, OUP [546.6 WIN] and texts recommended for CH1000.

Further Reading
C. J. Jones, d- and f-Block Chemistry, RSC, 2001. [546.6 JON].
S. F. A. Kettle, Coordination Compounds, Nelson. [546.345KET].
J. Burgess, Ions in Solution, Ellis Horwood. [541.372BUR].
D. Nicholls, Complexes and First-Row Transition Elements, Macmillan. [546.6NIC].

Other information
This course builds upon principles presented during the CH1000 module.
Module CH1007 Thermodynamics and Kinetics

Convenor: Prof. Abbott
Lecturer: Prof. Abbott
No. of Lectures: 20 Physical Chemistry (Second Semester)
Course credits: 10

Aims:
This course aims to introduce students to the principles and mathematical description of thermodynamics and kinetics.

The significance of concepts such as enthalpy, entropy, Gibbs energy, rate law, rate constant, and order of a chemical reaction will be described. Differences between kinetics and thermodynamics will be highlighted and the use of kinetic information to elucidate reaction mechanisms will be demonstrated. Problem-solving exercises will play an important role.

Learning Outcomes: at the end of this module students should be able to:

- describe and explain the aims and terminology of thermodynamics, including the first and second laws, enthalpy, entropy, Gibbs energy, chemical potentials, and chemical equilibrium.
- outline the link between classical thermodynamics and molecular properties.
- understand electrochemical processes and how they relate to thermodynamics and analytical chemistry.
- state and explain the gas laws and simple collision theory.
- know and understand the basic principle reaction kinetics and hence be able to calculate the effect of various parameters, e.g. concentrations, temperature on the rates of chemical reactions.

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.
- students will also extend their mathematical ability through structured problem-solving exercises.

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.
- solving problems in physical chemistry and applied maths by directed self-learning and discussions with peers and teachers.

Methods: Lectures, example problems, group problem solving workshops, tutorials, marked work.

Assessment: End-of-semester examinations: Thermodynamics and Kinetics (75%); marked tutorials (10%); continuous assessment (15%).

To gain credit for the module, you must get at least 40% in the module overall.

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. Library shelf marks are given in [square brackets].


Module CH1008 Organic Reactivity and Mechanism

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

Aims: This module aims to:

- Consolidate the establishment of a common language for representing and rationalising organic reactions through the use of line formulae and arrow-pushing.
- Define and embed the key concepts of organic reactivity (acidity, basicity, electrophilicity, nucleophilicity) and stereochemistry (conformation, configuration, enantiomers, diastereoisomers).
- Show how the interplay of structure and reactivity controls the outcomes of organic reactions.

Learning Outcomes:

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

- Represent a wide range of organic molecules accurately using line formulae and stereodrawings and execute accurate arrow-pushing descriptions of a range of simple transformations.
- Rationalise the structure, bonding and reactivity of a range of important organic molecules.
- Predict the mechanism and rationalise the stereochemical outcomes of nucleophilic substitution (SN), elimination (E) and addition reactions.
- Rationalise the reactions of alkenes and alkynes and be able to predict the regiochemical and stereochemical outcomes.
- Understand the structure and reactivity of simple aromatic compounds and be able to predict the regioselectivities seen in electrophilic substitution reactions of simple monosubstituted benzene derivatives.

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

Represent organic structures accurately and informatively, use arrow-pushing to rationalise and predict the outcomes of organic reactions, consolidate and expand course material from textbooks, solve a range of problems, build electronic and plastic models.

Methods: set text(s), Blackboard material, lectures, multiple choice questions in lectures and workshops, example problems, group problem solving in workshops, marked tutorial work.

Assessment: Tutorials (10%), in-course assessments (15%); end of semester examination (75%). The examination tests knowledge, understanding and problem solving using questions comparable with those completed (and marked) as part of the tutorial system. Feedback is provided from marked tutorial work, workshops and self-assessment against Blackboard material.

To gain credit for the module, you must get at least 40% in the module overall.

Course Texts


Other information

Molecular Models are essential as an aid to understanding stereochemistry and reaction mechanisms and will find repeated use in all three years of the course (they can be taken into examinations). The Orbit Molecular Models set with the supplementary inorganic kit will have been supplied as part of your starter pack, or can be purchased separately from Shop@le.ac.uk.
Module CH1030 Introduction to Forensic Science

Convenor: Prof. Hillman  
Lecturer: Prof. Hillman  
Semesters: Semester 1 & Semester 2  
Course credits: 15

Aims

This module aims to provide an understanding of the role of scientific evidence in a forensic context. Its context is set by the legal system described in module LW1161. Through an appreciation of the constraints applied by the nature of the evidence collected, this module aims to prepare students for study of analytical methods in Level 2 (modules CH2040 and CH2041).

*IMPORTANT NOTE:* Students taking this Module also take the “Scientific Ethics, Reasoning and Communication” component of CH1041.

Learning Outcomes:

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

- Understand the requirements of a forensic science investigation, from evidence collection to court proceedings.
- Appreciate the needs for recording, observational and analytical skills.
- Understand the different types of evidence and the limitations of each.
- Appreciate the need for good communication skills in an expert witness.
- Understand the need for scientific reasoning.
- Be familiar with some of the underlying philosophical principles of science, including deductive and inductive reasoning, and the concept of falsification.

Develop skills in the following:

- Scientific debate – constructing cases for and against a particular argument.
- Critical assessment of scientific arguments from both the scientific literature and mass media.
- Comprehend and discuss the ethical arguments that arise in many modern scientific scenarios.

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

Obtain new information from text books, the internet and other contemporary sources, assess evidence within both chemical and legal contexts, apply basic chemical principles to a forensic context, present scientific information to both a technical and non-technical audience.

Methods: set texts, lectures, workshops, group activities, presentations, marked work.

Assessment

Continuous assessments: a) forensics (25%): group activity involving research on selected topic to produce presentation, poster & individual report; b) ethics (25%).

Examinations: a) forensics (50%), 1.5hr, end of semester 2.

Recommended Texts

P. White, *Crime Scene to Court*, The Royal Society of Chemistry.


https://www.crcpress.com/Fundamentals-of-Fingerprint-Analysis/Moses-Daluz/9781466597976

[See also associated website: http://www.booksites.net/jackson]
Module CH1031 Pharmaceutical Chemistry Special Topics 1

Convenor: Dr Blackburn
Lecturers: Dr Blackburn, Dr Piletska, Dr Villa Marcos, Dr Lowe
No. of Lectures: 15 First Semester
Course credits: 10

Learning Outcomes:

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

- Appreciate the evolution of the pharmaceutical industry from the 19th century to modern day.
- Appreciate the biological targets for medicinal drugs.
- Describe the structure and properties of cellular membranes.
- Discuss the differences between prokaryotic & eukaryotic cells.
- Identify cellular structures and describe their chemical structure and functions.
- Describe different connections between cells.
- Know the difference between hazard and risk and be able of illustrate this with suitable examples.
- Know the difference between acute and chronic toxicity (with examples) and the problems of measuring toxicity to humans and of dose-time relationships.
- Appreciate the different types of drug action at enzymes and other such active sites
- Students should also be able to participate effectively in a range of teaching and learning activities, combine facts and ideas and communicate scientific concepts to a range of audience types.

Methods: Lectures, problem based learning workshops, independent study, reading set texts.

Assessment: Problem based learning exercises (25%), final examination 1.5 hrs (75%).

Further Reading:
Patrick, An Introduction to Medicinal Chemistry, Oxford Press [615.19 PAT]
Module CH1032 Pharmaceutical Chemistry Special Topics 2

Convenor: Dr Blackburn
Lecturers: Dr Blackburn, Dr Piletska
No. of Lectures: 25 (+ workshops) Second Semester
Course credits: 15

Learning Outcomes:

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

- Have a good understanding about nerve cells, their structure and functions.
- Describe the meaning of the term neurotransmitter and provide the examples of different groups of neurotransmitters and their functions.
- Have a general understanding of the structure and functions of nervous systems.
- Be able to describe in outline the nature of synaptic transmission at the neuromuscular junction and in the autonomic nervous system.
- Describe in outline how the sympathetic & parasympathetic nervous systems are organised.
- Describe the nature of molecular receptors and provide the examples of different groups of molecular receptors.
- Understand the terms agonist, antagonist and ligand.
- Explain the energy requirements in the cell and have an overview of the chemistry involved in the metabolism.
- Describe the general mechanism and importance of coupling to metabolism.
- Describe the role of ATP in the cell.
- Describe how the body regulates its metabolism.
- Describe the chemical structure and biological role of sugars, nucleotides and fatty acids in living systems.
- Discuss the role of enzymes in biological catalysis.
- Appreciate the role of amino acids, sugars, nucleotides and fatty acids in living systems.
- Appreciate the occurrence and role of terpenes, steroids, alkaloids and polyketides in Nature.
- Appreciate how molecules are used to communicate (find a mate, repel predators, prevent growth of ecological competitors) with members of the same or other species.

Students should also be able to participate effectively in a range of teaching and learning activities, combine facts and ideas and develop skills in scientific debating and the critical assessment of scientific arguments.

Methods: Lectures, problem based learning workshops, independent study, reading set texts.

Assessment: Continuous assessment exercise (25%), oral/poster presentation (25%), final examination 1.5 hrs (50%)

Further Reading
Patrick, An Introduction to Medicinal Chemistry, Oxford Press. [615.19 PAT]
Berg, Tymoczko, Gatto, Stryer, Biochemistry, W. H. Freeman & Co. [572 BER]
Module CH1041 Chemistry Special Topic Part A

Convenor: Dr Lowe, Lecturers: Dr Lowe, Dr Williams & Dr Blackburn, No. of lectures: 25 First semester

Course credits: 15, Course aims: To introduce students to a range of topics of current interest many of which are inter-disciplinary and to illustrate the importance of chemistry in these areas.

Learning Outcomes - Subject knowledge: at the end of this module students should be able to discuss the ethics, philosophy and communication of science particularly with respect to chemistry, understand the implications of chemistry in a wider context, e.g. society, the environment.

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, have competent written communication, including writing a short word processed essay, solve problems. Methods: lectures, marked work. Assessment: 70% examination (1½ hr. Environmental Chemistry); 20% poster/written task (Environmental Chemistry); 10% written task (Ethics).

Scientific Ethics, Reasoning and Communication (Dr Williams & Dr Blackburn): The aim of these sessions is to introduce the language, logic and philosophy employed by scientists in their quest to expand knowledge, and in particular to consider them in the context of some of the major challenges and problems faced by scientists in the 21st century. The emphasis will be on building the skills required to present reasoned and rational arguments on paper, in spoken presentation and in formal debate, and the ability to critically assess and appraise such arguments.

Learning Outcomes: at the end of these lectures students should be able to:

- Explain the need for scientific reasoning, describe the underlying philosophical principles of science, including deductive and inductive reasoning, and the concept of falsification, construct cases for and against a particular argument, critically assess scientific arguments from both the scientific literature and mass media, analyse and discuss the ethical arguments that arise in many modern scientific scenarios.

Further Reading - A recommended text to accompany the course is: Jeffrey A. Lee The Scientific Endeavour. A new text that manages to cover very similar areas to the module at an appropriate level. You may find the following texts helpful and interesting:

Ronald N. Giere, Understanding scientific reasoning. An excellently structured book that builds up the concepts logically and moves on to more advanced material than is covered in the module, F. Chalmers, What is this thing called Science? A good and very readable introduction to the philosophy of science (especially the first six chapters), Stewart Richards, Philosophy and Sociology of Science. Focuses more on philosophy and covers the historical evolution of the arguments.

For the interested reader: Samuela Rapport and Helen Wright, Science: Method and Meaning. Some interesting examples.

Environmental Chemistry (Dr Lowe & Dr Williams): These lectures aim to discuss pollution in terms of risk assessment and risk management, focussing on water treatment and the fate of pollutants in the hydrosphere, and atmospheric chemistry and some contemporary problems of atmospheric pollution such as photochemical smog, the greenhouse effect and damage to the ozone layer.

Learning Outcomes: At the end of these lectures students should be able to:

- Know the difference between hazard and risk and be able to illustrate this with suitable examples, know the difference between acute and chronic toxicity (with examples) and the problems of measuring toxicity to humans and of dose-time relationships, be able to discuss risk-benefit analysis (with examples) and pollution problems associated with pesticides and water purification.
- Know the basics of radioactive decay and how it can be used e.g. in carbon dating and smoke alarms.
- Other examples may be studied in the course and students should be able to discuss the general principles involved in assessing the environmental impact of all materials.
- Know at a fairly simple level the chemical processes involved in water treatment, describe the chemistry of the ozone cycle and explain its effect on the temperature gradient of the atmosphere, recall natural and man-made sources of trace gases in the atmosphere, calculate the residence time of trace gases in the atmosphere and describe the source-transport-sink relationship.
- Describe the basic chemical and environmental factors underlying the formation of the major pollutants in photochemical smog and the main counter-measures, explain the effect of CFCs on the ozone layer and the factors leading to holes in the layer over Antarctica, describe the atmospheric chemistry of sulfur and nitrogen oxides which leads to the formation of acid rain, describe the physical and chemical factors which give rise to the greenhouse effect.
- Calculate the predicted surface temperature of a planet based on the Blackbody radiation model and the energy of solar radiation required to bring about photolysis of gas phase species in the atmosphere.

Transferable skills: This module aims to improve the student’s skills in obtaining new information from text books and the internet, communicating science to various audiences using posters, writing a concise summary of a piece of literature research on a scientific topic. Further Reading Gary W. vanLoon & Stephen J. Duffy, Environmental Chemistry – A Global Perspective [OUP].
Module CH1042 Chemistry Special Topic Part B

Convenor: Dr Williams
Lecturers: Dr Williams + Dr Blackburn
No. of lectures: 20 Second semester + Workshops
Course credits: 15

Aims: To improve students' communication skills and to survey chemistry in nature.

Molecules in Nature (Dr Blackburn)

These lectures examine the role of organic molecules in Nature from the basic building blocks of Life such as amino-acids, sugars and fatty acids, to more specialised molecules such as alkaloids and steroids, and to the role of molecules such as pheromones in ecology.

Learning Outcomes:

Subject Knowledge: at the end of these lectures students should be able to:

- Appreciate the role of amino acids, sugars, nucleotides and fatty acids in living systems.
- Appreciate the occurrence and role of terpenes, steroids, alkaloids and polyketides in Nature.
- Appreciate how molecules are used to communicate (find a mate, repel predators, prevent growth of ecological competitors) with members of the same or other species.

Communication Skills and Industrial Chemistry (Dr Williams)

Learning Outcomes:

Subject Knowledge & Transferable skills: at the end of this module students should be able to:

- Research new information from text books, research articles and websites.
- Critically evaluate the work of others.
- Communicate science to various audiences using a range of methods.
- Solve problems in chemistry by directed self-learning and discussions with peers and teachers.
- Work within a group to devise a solution to an ill-defined scientific problem.

Methods: lectures, example problems, marked work.

Assessment: 50% Continuous assessment (Group presentation, Individual blog post, Individual presentation & Individual written summary) + 50% Molecules in Nature; multiple choice exam.

Further Reading

Module CH1061/CH1063 Chemistry Practical – Part A and Chemistry Practical (Forensic) – Part A

Convenors: Dr Lowe
Course Staff: Dr Lowe, Dr Solan, Dr Williams, Dr Guerreiro
No. of Weeks: 12 First Semester + start of Second Semester
Course credits: 15 (CH1061); 10 (CH1063)

Module CH1063 (10 credits) – has the same aims and outcomes as CH1061 (see below) but some experiments will be shortened or omitted.

Aims: To provide an introduction to a range of qualitative and quantitative analytical techniques, separation and purification techniques in practical chemistry.

Learning Outcomes:

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

- Carry out a range of quantitative and qualitative analytical techniques.
- Separate and purify organic compounds using techniques (recrystallisation, distillation, and simple chromatography).
- Determine melting point.
- Prepare a representative compound of aluminium.
- Keep a laboratory notebook.
- Write a report on a scientific experiment.

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

- Develop manipulative skills.
- Develop observational skills.
- Interpret experimental observations and data.
- Plan experiments.
- Perform experiments safely and proficiently.
- Record experimental details and observations in a laboratory notebook.
- Write a laboratory report.

Methods: Practical classes with appropriate demonstration.

Assessment: You are assessed on your practical skills, the quality of samples and data, ability to keep a laboratory notebook, a written final report and pre-lab questions.

IMPORTANT: Attendance is compulsory for all practical courses. There are no re-sit practical examinations. A minimum of 75% of your scheduled practical sessions must be completed, and students must achieve a minimum average mark of 40% overall to pass the practical course, otherwise you will fail practical and your course will be terminated.

Further Reading:

J. R. Dean, Practical Skills in Chemistry. Prentice Hall [542PRA]
Module CH1062/CH1064 Chemistry Practical – Part B and Chemistry Practical (Forensic) – Part B

Convenor: Dr Lowe
Course Staff: Dr Lowe, Dr Piletska, Dr Guerreiro, TBC
No. of Weeks: 8 Second Semester
Course credits: 15 (CH1062); 10 (CH1064)

Module CH1064 (10 credits) - has the same aims and outcomes as CH1062 (see below) but some experiments will be shortened or omitted.

Aims: This module aims to continue the development of the technical skills and other attributes of the responsible laboratory scientist.

Learning Outcomes:

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

- Prepare a range of organic compounds using important preparative methods such as hydroxylation of alkenes, esterification and reduction of ketones, and the Diels-Alder reaction.
- Prepare representative compounds of tin and iodine.
- Use chromatography (GLC, TLC) for analysis, and IR spectroscopy and melting points for identification.
- Know the different types of errors that may occur in experiments and how to deal with them.
- Carry out simple experiments in physical chemistry on topics such as thermodynamics, kinetics and spectroscopy.
- Use a computer to plot and analyse data.
- Plan experiments as part of a large group to collect and analyse large amounts of data.

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

- Observe, record, analyse and present data in appropriate formats.
- Write laboratory reports.
- Meet deadlines.

Methods: Practical classes with appropriate demonstration, supported by occasional lectures or workshops.

Assessment: Assessment of laboratory work and laboratory records and reports (100%).

IMPORTANT: Attendance is compulsory for all practical courses. There are no re-sit practical examinations. A minimum of 75% of your scheduled practical sessions must be completed, and students must achieve a minimum average mark of 40% overall to pass the practical course, otherwise you will fail practical and your course will be terminated.
### Information on Relevant CFS Modules from other Departments

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<td>Dr Maribel Canto Lopez</td>
<td><a href="mailto:micl1@le.ac.uk">micl1@le.ac.uk</a></td>
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<td>LW1141</td>
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<td>Prof Mandy Burton</td>
<td><a href="mailto:mdb15@le.ac.uk">mdb15@le.ac.uk</a></td>
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