Unit Outline 2014
Faculty of Education, Science, Technology and Mathematics

Chemistry 1a
1516
1: General Information

1a Unit title  Chemistry 1a

1b Unit number  1516

1c Teaching Period and year offered  Semester 1, 2014

1d Credit point value  3

1e Unit level  1

1f Name of Unit Convener and contact details (including telephone and email)

Associate Professor Dr Ashraf Ghanem,
Room 3D41
Phone: (02) 6201 2089
Email: ashraf.ghanem@canberra.edu.au  Website: www.chiralitygroup.com

1g Administrative contact details (including name, location, telephone and email)

ALL UNIT related enquiries should be emailed to Chem1A@canberra.edu.au using your University of Canberra email account.

Kim Taylor, Manager, Science Resource Centre
Room 6B103, (02) 6201 2298, Kim.Taylor@canberra.edu.au

Faculty Administrative Office
Email: ESTeM-courseadvice@canberra.edu.au
Phone: (02) 6201 2400, Location: Building 6, level C, Room 38
2: Academic Content

2a Unit description and learning outcomes

This unit assumes no prior knowledge of chemistry and provides a unified introductory course in chemistry as a framework for further studies in chemistry and biochemistry. Topics covered are atomic structure and chemical periodicity, measurement, bonding, oxidation and reduction, acids and bases, precipitation reactions, titrations, phase diagrams, solutions, and gas laws. These important basic principles and concepts are developed using pertinent examples and special topics that highlight the everyday applications of chemistry. This unit is co-taught with unit 6479 Chemistry 1A G.

On completion of this unit, students will be able to:
1. demonstrate good laboratory practice when working with chemicals either individually or in cooperation with others;
2. perform and set-up simple experiments that demonstrate their understanding of some of the important basic chemical principles; and
3. predict the chemical behaviour of a variety of elements and compounds from their understanding of the structure and reactivity of matter.

2b Generic skills

The University recognises that individuals entering its programs bring with them a diversity of personal and professional attributes that should be further developed by their experience as students and graduates of the University. These generic skills can be accessed at: https://guard.canberra.edu.au/policy/policy.php?pol_id=3030

By the end of their course, graduates will have developed skills and attributes in:
1. Communication
   The ability to present knowledge, ideas and opinions effectively and communicate within and across professional and cultural boundaries (assessed in tutorials and written tests).
2. Analysis and inquiry
   The ability to gather information, and to analyse and evaluate information and situations in a systematic, creative and insightful way (assessed in online quizzes, tutorials, laboratories and written tests).
3. Problem solving
   The ability to apply problem-solving processes in novel situations; to identify and analyse problems then formulate and implement solutions (assessed in online quizzes, tutorials, laboratories and written tests).
4. Working independently and with others
   The ability to plan their own work, be self-directed, and use interpersonal skills and attitudes to work collaboratively (assessed in the laboratories and tutorials).
5. Professionalism and social responsibility
   The capacity and intention to use professional knowledge and skills ethically and responsibly, for the benefit of others and the environment

Personal attributes

Individuals entering our programs bring with them a diversity of attributes and experiences. As students of the University they will develop the qualities of critical thinking, curiosity and reflective practice. They will use foresight, initiative and leadership, and be open to alternative perspectives. As graduates, they will continue to learn and thrive in environments of complexity, ambiguity and change.

Generic skills that are emphasised in this unit are referred to in the assessment overview (5a).
2c Prerequisites and/or co-requisites

This unit has no prerequisites or any co-requisites.

3: Delivery of Unit and Timetable

3a Delivery mode

On-campus: regular on-campus attendance is expected, (online content support provided) with weekly lectures/tutorials/seminars/practicals.

1x 1 hour and 1x 2 hour lecture per week for 12 weeks (totalling 32 lectures including mid semester test session)
1 two hour laboratory session per week for 11 weeks
1 one hour tutorial session per week for 10 weeks

The lectures introduce, explain and illustrate basic chemical principles in a logical sequential fashion. These important principles are developed using pertinent examples and special topics to give students a clearer understanding of the concepts and their applications.

The laboratory and tutorial sessions provide the opportunity for students to become active, independent learners both as individuals and by cooperating with other students in small groups. These sessions reinforce basic chemical principles and/or provide the opportunity for students to acquire basic chemical laboratory skills. In the laboratory sessions, students carry out practical experiments, record their observations, predict certain consequences and test predictions. During tutorials, students should engage in the learning process in order to master some of the unit material through conceptual understanding while developing essential learning skills. For both the laboratory and tutorial sessions, students will be divided into groups with a demonstrator or tutor assigned to each group. You will be assigned to a demonstrator/tutor during your first laboratory/tutorial session and you are expected to stay with this laboratory/tutorial group for the remainder of the semester.

<table>
<thead>
<tr>
<th>Lecture Timetable</th>
<th>LA/01</th>
<th>Mon</th>
<th>11.30 – 12.30</th>
<th>14B01</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LB/01</td>
<td>Wed</td>
<td>13.30 – 15.30</td>
<td>14B01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory Timetable</th>
<th>P/01</th>
<th>Tue</th>
<th>9.00 – 11.00</th>
<th>27B14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P/02</td>
<td>Tue</td>
<td>12.00 – 14.00</td>
<td>27B14</td>
</tr>
<tr>
<td><strong>Select ONE of these</strong></td>
<td>P/03</td>
<td>Tue</td>
<td>15.30 – 17.30</td>
<td>27B14</td>
</tr>
<tr>
<td>Sessions</td>
<td>P/04</td>
<td>Tue</td>
<td>18.00 – 20.00</td>
<td>27B14</td>
</tr>
<tr>
<td></td>
<td>P/05</td>
<td>Wed</td>
<td>9.30 – 11.30</td>
<td>27B14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tutorial Timetable</th>
<th>T1/T2</th>
<th>Wed</th>
<th>8.30 – 9.30</th>
<th>2C6/2C7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T5/T6</td>
<td>Wed</td>
<td>17.30 – 18.30</td>
<td>2C7/2C9</td>
</tr>
<tr>
<td></td>
<td>T7</td>
<td>Wed</td>
<td>18.30 – 19.30</td>
<td>2C6</td>
</tr>
<tr>
<td></td>
<td>T8/T9</td>
<td>Thu</td>
<td>8.30 – 9.30</td>
<td>2A4/2A13</td>
</tr>
<tr>
<td><strong>Select ONE of these</strong></td>
<td>T10/T11</td>
<td>Thu</td>
<td>12.30 – 13.30</td>
<td>7B13/2A14</td>
</tr>
<tr>
<td>Sessions</td>
<td>T12/T13</td>
<td>Thu</td>
<td>16.30 – 17.30</td>
<td>7B9/2C5</td>
</tr>
<tr>
<td></td>
<td>T14</td>
<td>Thu</td>
<td>18.00 – 19.00</td>
<td>1C20</td>
</tr>
<tr>
<td></td>
<td>T15/T16</td>
<td>Fri</td>
<td>8.30 – 9.30</td>
<td>2C7/2C6</td>
</tr>
<tr>
<td></td>
<td>T17/T18</td>
<td>Fri</td>
<td>9.30 – 10.30</td>
<td>2C9/2C6</td>
</tr>
<tr>
<td></td>
<td>T19/T20</td>
<td>Fri</td>
<td>15.00 – 16.00</td>
<td>2C9/2C7</td>
</tr>
<tr>
<td></td>
<td>T21/T22</td>
<td>Fri</td>
<td>16.00 – 17.00</td>
<td>2C7/2C6</td>
</tr>
</tbody>
</table>

*The availability of each laboratory and tutorial session is subject to enrolment numbers. Laboratory and tutorial groups will be finalised by the end of Week 2.*
**EXTRA TUTORIALS:** To assist students who experience difficulty understanding the unit material and/or students who have not studied science or chemistry for some time, optional extra tutorials are available:

An optional SRC ‘**BACK TO BASICS**’ tutorial will be held 12.00 - 13.30 on Fridays (Room 14B01; this session appears as LC/01 on the timetable) – refer to Moodle for more information on the sessions scheduled. This session is specifically designed to assist students to grasp the fundamental concepts underpinning the unit and may be particularly useful for students who have not studied science previously (ALL students are welcome to attend if they wish).

The **Extra Tutorial Program** runs through the Science Resource Centre (SRC). This program covers at least 3 hours of extra tutorials per week for all 12 weeks of semester. Tutorial times will be posted on Moodle and in the Science Resource Centre (Room 6B103). During these sessions you will work in small groups with a student mentor who has recently and successfully completed Chemistry 1A.

On-line self-paced learning and assessment for basic Mathematical skills as required by this Unit. Time spent depends on entry level of mathematical expertise.

3b **Timetable of activities, such as lectures/ tutorials/ practicals/ field classes, showing key dates and topics**

**Mathematics Pathways Mastery Module:**

- Week 1 - Diagnostic Evaluation of Entry Level Mathematics – Pearson’s Site available via Unit Moodle site.
- Weeks 1 – 6 - Progress through online Mathematics Pathways module in Pearson’s site.
- End week 6 - Undertake the Mathematics Mastery Completion test (self test - online)
- Week 7 - Undertake the Mathematics Verification Test (invigilated/supervised)

*Refer to the next page for the detailed unit schedule (including lectures, tutorials, practicals and online quizzes).*
<table>
<thead>
<tr>
<th>Week</th>
<th>Beginning Date</th>
<th>Lecture No.</th>
<th>Lecture Topic</th>
<th>Laboratory</th>
<th>Tutorial</th>
<th>Quiz</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/02</td>
<td>Orientation Week</td>
<td>1</td>
<td>Introduction</td>
<td>Laboratory Orientation/ Diagnostic Testing</td>
<td>T1 Atoms, isotopes and ions</td>
<td></td>
</tr>
<tr>
<td>10/02</td>
<td>Orientation Week</td>
<td>2</td>
<td>The Atom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/02</td>
<td>Orientation Week</td>
<td>3</td>
<td>Measurement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>17/02</td>
<td>4</td>
<td>Representation of molecules</td>
<td>L1 Chemical reactions</td>
<td>T2 Moles and molar mass</td>
<td>Quiz 1</td>
</tr>
<tr>
<td>2</td>
<td>17/02</td>
<td>5</td>
<td>Stoichiometry - The mole</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>17/02</td>
<td>6</td>
<td>Stoichiometry - Chemical reactions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>03/03</td>
<td>7</td>
<td>Stoichiometry - Limiting reagents</td>
<td>L2 Volumetric analysis</td>
<td>T3 Balanced chemical reaction equations</td>
<td>Quiz 2</td>
</tr>
<tr>
<td>3</td>
<td>03/03</td>
<td>8</td>
<td>Stoichiometry - Concentration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>03/03</td>
<td>9</td>
<td>Titrations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10/03</td>
<td></td>
<td>Public holiday (Monday, Canberra day)</td>
<td>L3 Titrations</td>
<td>T4 Limiting reagents</td>
<td>Quiz 3</td>
</tr>
<tr>
<td>4</td>
<td>10/03</td>
<td>10</td>
<td>Atomic energy levels Part 1 &amp; 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10/03</td>
<td>11</td>
<td>Atomic Structure/Periodic Table</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>17/03</td>
<td>12</td>
<td>Atomic Structure Part 2</td>
<td>L4 Emission spectroscopy</td>
<td>T5 Electromagnetic radiation</td>
<td>Quiz 4</td>
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<tr>
<td>5</td>
<td>17/03</td>
<td>13</td>
<td>Chemical Bonds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>17/03</td>
<td>14</td>
<td>Chemical Bonds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>24/03</td>
<td>15</td>
<td>Gases</td>
<td>L5 Acids and Bases Part I</td>
<td>T6 Chemical bonding</td>
<td>Quiz 5</td>
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<tr>
<td>6</td>
<td>24/03</td>
<td>16</td>
<td>Gases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>24/03</td>
<td>17</td>
<td>Intermolecular Forces</td>
<td></td>
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<td></td>
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<tr>
<td>7</td>
<td>31/03</td>
<td>18</td>
<td>Condensed phases: Part 1</td>
<td>L6 Acids and Bases Part II</td>
<td>T7 Gases</td>
<td>Quiz 6</td>
</tr>
<tr>
<td>7</td>
<td>31/03</td>
<td>19</td>
<td>Condensed phases: Part 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>31/03</td>
<td>20</td>
<td>Chemical Equilibria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>07/04</td>
<td></td>
<td>Class Free Period</td>
<td>No lab</td>
<td>No tutorial</td>
<td>Quiz 7</td>
</tr>
<tr>
<td>9</td>
<td>14/04</td>
<td>21</td>
<td>Chemical Equilibria</td>
<td>No lab</td>
<td>No tutorial</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>14/04</td>
<td></td>
<td>Midsemester Test (Wednesday 16 April at 13.30 pm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>21/04</td>
<td></td>
<td>Public Holiday (Good Friday)</td>
<td>No tutorial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>21/04</td>
<td>22</td>
<td>Public Holiday (Easter Monday)</td>
<td>Dry Lab: Chemical equilibria (T8) and equilibrium calculations (T9)</td>
<td>No tutorial</td>
<td>Quiz 8</td>
</tr>
<tr>
<td>11</td>
<td>28/04</td>
<td>23</td>
<td>Acids &amp; Base equilibrium</td>
<td>L7 Acid/Base titrations</td>
<td>T10 Intro to acid-base theory</td>
<td>Quiz 9</td>
</tr>
<tr>
<td>11</td>
<td>28/04</td>
<td>24</td>
<td>Acids &amp; Base equilibrium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>28/04</td>
<td>25</td>
<td>Acids &amp; Base equilibrium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>05/05</td>
<td>26</td>
<td>Solutions and solubility</td>
<td>L8 Precipitation &amp; qualitative analysis</td>
<td>T11 Weak acid-base equilibria</td>
<td>Quiz 10</td>
</tr>
<tr>
<td>12</td>
<td>05/05</td>
<td>27</td>
<td>Solutions and solubility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>12/05</td>
<td>28</td>
<td>Solute/Solid equilibrium</td>
<td>L9 Oxidation-reduction reactions</td>
<td>T12 Redox</td>
<td>Quiz 11</td>
</tr>
<tr>
<td>13</td>
<td>12/05</td>
<td>29</td>
<td>Solute/Solid equilibrium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>12/05</td>
<td>30</td>
<td>Redox</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>12/05</td>
<td>31</td>
<td>Redox</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Lecture schedule is provisional and subject to change.
The Friday back to basics sessions are in weeks 1-7, 11-13 (Friday public holidays weeks 9 &10).
Note: Each quiz opens Friday 5pm of the previous week and closes the following Sunday at midnight.

Australian Government Higher Education (CRICOS)
Registered Provider number: #00212K
4: Unit Resources

4a Lists of required texts/readings


This text is available for purchase through the Co-op bookshop (either as hard copy or ebook) and for temporary loan in the University of Canberra Library. The first edition of this textbook is also a suitable accompaniment to this unit if you wish to purchase a second hand copy; however, the page references provided in the unit material (e.g. lecture slides, tutorial and laboratory handouts) correspond to the second edition only.


This is a support textbook which you may find useful depending on your background in mathematics. This text is available for purchase through the Co-op bookshop and for temporary loan in the University of Canberra Library.

For Unit readings and resources in the University of Canberra Library
Link to search page for Unit Readings (print materials)
Link to search page for eReserve (electronic materials)

4b Materials and equipment

The Chemistry 1A Laboratory and Tutorial Workbook will provide material required for the laboratory and tutorial sessions throughout the semester. This workbook will be distributed FREE of charge during the first laboratory sessions in Week 1; the electronic version is also available on the Chemistry 1A Moodle website.

Laboratory coats, safety glasses and enclosed footwear (which cover your feet completely) ARE MANDATORY in ALL chemistry laboratory classes. Laboratory coats and safety glasses are typically available from stores such as UC Union Shop (located on campus in the Hub) and/or work wear stores (such as Bunnings or Workin’ Gear (Fyshwick)).

4c Unit website

To find your unit site online, log in to LearnOnline(Moodle) using your student ID.

Note that your unit site has a profiles page that displays your name and email address for the benefit of other students. If you prefer to hide your email address, click here for instructions.

The Moodle site for Chemistry 1A contains a collection of online tools that facilitate teaching and learning. Unit materials including lecture notes (in pdf format), lecture recordings, practice and test quizzes, laboratory and tutorial information, additional self-assessment materials and learning resources will be posted on the Moodle site. Students should regularly check the discussion forums, which will include any important announcements; student can also monitor their progress grades using the ‘Gradebook’ facility.

To access the Chemistry 1A Moodle site, follow the link from the University of Canberra homepage (http://www.canberra.edu.au/) to My UC Portal. Login using your UC student username and password. Select ‘Study Tools’ from the top menu and then click on ‘Moodle’. Alternatively, login to LearnOnline(Moodle) using your student ID.
This Unit’s Moodle site contains links to the Mathematics Pathways Module that operates via the Pearson’s MyMathLab resources. Students must use this module to gain access to the learning program and tests that are an essential part of this Unit.

The Mathematics Pathways module comprises the minimum capability in entry level Mathematics required for a successful attempt at the required Mathematics intrinsic to this Unit.

Students will also have access to a WileyPLUS site for Chemistry 1A. This website http://wpadmin.wileyplus.com/edugen/class/cl379425/ which accompanies the textbook will enable students to access many online problems for revision purposes to assist in their understanding of the concepts and techniques/strategies required to solve chemistry problems. Details on how to access the WileyPLUS site will be announced in the first lecture.

5: Assessment

5a Assessment overview

All staff and students are required to read the document named ‘Assessment Responsibilities’ on the following link to ensure accurate understanding of the various perspectives surrounding assessment at UC. It can alleviate many misunderstandings. https://guard.canberra.edu.au/policy/policy.php?pol_id=2900

<table>
<thead>
<tr>
<th>Assessment item (including exams held in the exam period)</th>
<th>Due date of assignments</th>
<th>Weighting (total to equal 100%)</th>
<th>Addresses learning outcome(s)</th>
<th>Related generic skill(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Assessment</td>
<td>5 lab submissions periodically throughout the semester</td>
<td>15 % (L1 (Week 3), L3 (Week 5), L5 (Week 7), L7 (Week 12), L9 (Week 13) 3% x 5 = 15%)</td>
<td>2, 3</td>
<td>2, 3, 4</td>
</tr>
<tr>
<td>Tutorial Assessment</td>
<td>End of each tutorial session</td>
<td>15 %</td>
<td>1</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>Moodle test quizzes</td>
<td>Weekly</td>
<td>10 %</td>
<td>1</td>
<td>2, 3, 4</td>
</tr>
<tr>
<td>Mid-semester test (2 hour paper)</td>
<td>Wednesday 16th April 1.30 – 3.30</td>
<td>25 %</td>
<td>1</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>Final exam (3 hour paper)</td>
<td>End of semester exam period</td>
<td>35 %</td>
<td>1</td>
<td>1, 2, 3, 4</td>
</tr>
</tbody>
</table>

Key for UC Generic Skills
1 - Communication
2 - Analysis and Inquiry
3 - Problem Solving
4 - Working independently and with others
5 - Professionalism and Social Responsibility
Details of each assessment item

**Laboratory Assessment (15 %)**
The laboratory sessions are designed to develop essential practical skills associated with the unit and to develop/enhance your understanding of chemical concepts, and are therefore compulsory.

Each laboratory session involves:
(a) pre-lab questions (answering a set of questions before attending the session),
(b) the laboratory activities (recording experimental observations, answering questions, and performing calculations),
(c) post-lab questions (completing a set of questions having undertaken the laboratory activities).

At the commencement of each laboratory session, student’s pre-lab question answers will be checked, therefore students are required to attempt these questions before arriving for the session. Completion of the pre-lab questions and active participation during the laboratory sessions (as assessed by the laboratory demonstrator) are mandatory.

*Periodically throughout the semester,* students will be asked to complete a Laboratory Submission based on the laboratory session for the corresponding week. The Laboratory Submission will be issued to each student during the laboratory session; it will then be completed on an individual basis and submitted at the end of the session for marking and feedback. It is recommended that the students use a ring folder to hold their Laboratory and Tutorial Workbook during the semester.

The post-lab questions are not formally assessed; however students are encouraged to attempt the post-lab questions as part of their revision to gauge their level of understanding having undertaken the laboratory activities.

*If students cannot attend their normal laboratory session* for a particular week, they may be allowed to attend another session for that week. Students are advised to check the Current Laboratory Session Availability List on Moodle to determine if there is likely to be space available in your desired ‘make-up’ session. However be aware that this does not guarantee a place in a particular session as limits do apply to each session. *Students not able to attend any session for a particular week* will need to submit a medical certificate or some other evidence to justify their absence. The minimum participation in the laboratories requirement must be met in order to pass the unit (regardless of supporting documentation). *In the event of prolonged illness* you should consult with the Unit Convener as soon as possible.

During the laboratory sessions students must wear protective clothing (a laboratory coat and safety glasses), and enclosed shoes that completely cover the foot. Students who arrive for a laboratory class without the required protective clothing and/or enclosed shoes will be asked to attend a different session.

**Tutorials (15 %)**
The tutorial sessions are designed to engage students in the learning process and to assist students to master some of the unit material through conceptual understanding while developing essential learning skills. Process-oriented guided-inquiry learning (POGIL) activities have been selected to enable students to use a learning cycle design of exploration and concept formation followed by application. Most of the tutorial activities will be completed with students working in small groups within their tutorial session, with the tutor acting as a facilitator. *At the end of each session* students will submit the corresponding tutorial handout from their Chemistry 1A Laboratory and Tutorial Workbook for marking and feedback by their tutor. It is recommended that the students use a ring folder to hold their workbook during the semester to facilitate the submission of the tutorial handouts.
If students cannot attend their normal tutorial session for a particular week, they may be allowed to attend another session for that week. Students are advised to check the Current Tutorial Session Availability List on Moodle to determine if there is likely to be space available in your desired ‘make-up’ session. However be aware that this does not guarantee a place in a particular session as limits do apply to each session. Students not able to attend any session for a particular week will need to submit a medical certificate or some other evidence to justify their absence. The minimum participation in the tutorials requirement must be met in order to pass the unit (regardless of supporting documentation). In the event of prolonged illness you should consult with the Unit Convener as soon as possible.

**Moodle quizzes (10%)**
The weekly Moodle quiz, consisting of multiple choice questions and/or calculations, will contain questions relating to concepts covered in the previous week. Practice quizzes will also be available on Moodle prior to the assessable test quiz. The practice quizzes can be attempted multiple times for the purposes of revision and will not contribute to your overall mark. Each test quiz will be 1 hour in duration (unless stated otherwise) and only one attempt is permitted. The test quiz will open Friday 5pm of the previous week and close the following Sunday at midnight (refer to the schedule above in Section 3b). If you have any difficulties in accessing the test quiz during this time or can not complete the test quiz due to medical reasons, you should email Chem1A@canberra.edu.au as soon as possible (with supporting documentation).

Your best 60% of test quizzes will be used to calculate your Moodle test quiz component marks.

**Mid-semester test (25%)**
This is 2 hour written test which may include multiple choice and short answer questions. A scientific calculator is permitted, but graphics/programmable calculators and dictionaries are NOT allowed. This test covers lecture topics covered in Weeks 1 – 7, laboratory sessions 1 – 4, and tutorials 1 – 7 (refer to schedule above in Section 3b). The mid-semester test is scheduled for Week 9 (tentatively Wednesday 16th April from 1.30 – 3.30 pm); these details will be confirmed on Moodle closer to the time.

**Final examination (35%)**
This is a 3 hour written examination which may include multiple choice and short answer questions. A scientific calculator is permitted, but graphics/programmable calculators and dictionaries are not allowed. This test covers the lecture, laboratory and tutorial topics covered throughout the semester, with emphasis on Weeks 10 – 13. The exam will be scheduled during the formal final examination period at the end of the semester.

Feedback on all assessment items will be provided in a timely and constructive manner.

**Late submission of assignments**
Late submission of assignments without an approved extension will result in the assignment not being marked and zero being recorded for that particular assignment. In extenuating circumstances a late submission may be considered upon the production of supporting documentation and at the discretion of the unit convener.

**Extensions:** Extensions must be applied for before the due date.
Students can apply for an extension to the due date for submission of an assessment item on the grounds of illness or other unavoidable and verifiable personal circumstances. Documentary evidence will be expected in order that an extension be granted.

It should be noted that such documentation will be considered but will not guarantee that the application will be successful. The Unit Convenor will decide whether to grant an extension and the length of the extension.
Responsibility for understanding
If there is any doubt with regard to the requirements of any particular assignments or assessment procedure, the onus for clarifying the issue rests with the student who should contact the unit convenor or tutor. Further, it is the responsibility of students to ensure that they are correctly enrolled in the unit and that the tutor and Student Administration have their correct contact details.

Deferred examinations
Provisions will be made for students who are unable to sit either the mid-semester test or end of semester examination and produce appropriate medical certificates or other documentation. In the event a student misses the mid-semester test due to illness or other exceptional circumstances (refer to eligibility criteria), they must submit a Faculty of ESTeM Science Deferred Examination Request form (available on Moodle), along with appropriate documentation (original or certified copy), within 3 working days to the ESTeM Academic Program Office (either by email ESTeM-courseadvice@canberra.edu.au or in person Room 6C38). If their request is approved students will be allowed to sit a deferred mid-semester test at a later date (as chosen by the unit convener). In the event a student misses the end of semester examination due to illness or other exceptional circumstances, the procedures outlined on http://www.canberra.edu.au/student-services/examinations/alternative-exams must be followed (including submitting deferred application form within 3 days of scheduled exam to the Examinations Office).

5c Special assessment requirements

Students must achieve an overall mark of 50% or higher to pass this unit. The following criteria must also be satisfied to pass this unit:

1. Participation in laboratory and tutorial sessions is a compulsory condition of this unit. A student must participate in at least 75% of the laboratory and 80% of the tutorial sessions in order to pass the unit.
2. Students must achieve at least 40% in the laboratory assessment in order to pass the unit.
3. Students must achieve a combined average of 40% for the written assessments (mid semester test and final examination)
4. Students must achieve at least 80% in the Mathematics Pathways module (i.e. the Mastery Completion test) to meet the pass requirements in this Unit.
5. Students must attempt all assessment items.

In regards to the Mathematic Pathways Mastery module:

1. Students may undertake the Mathematics Mastery Completion test any number of times to achieve Mathematical Pathways mastery. (Different values within the problems are generated each time you undertake the test)
2. Students must sit for the supervised Mathematics Verification test – which is a smaller version of the Mathematics Mastery Completion test.
3. Students for whom the Mathematics Verification test and Mathematics Mastery Completion test do not correlate will meet with Unit Convener to establish academic integrity.

5d Supplementary assessment

Supplementary assessment will usually only be offered to students who have failed a single unit in their final semester with a final mark between 45-49%. (The unit must be required for course completion.) Refer to the UC Supplementary Assessment Policy.
5e **Academic Integrity**
Students have a responsibility to uphold University standards on ethical scholarship. Good scholarship involves building on the work of others and use of others’ work must be acknowledged with proper attribution made. Cheating, plagiarism, and falsification of data are dishonest practices that contravene academic values. Please see UC’s Academic Integrity Policy.

To enhance understanding of academic integrity, it is expected that all students will complete the LearnOnline Academic Integrity Module (AIM) at least once during their course of study. The module is automatically available as a listed site when students log into LearnOnline.

5f **Use of text-matching software**
The University of Canberra has available, through LearnOnline (Moodle), text-matching software that helps students and staff reduce plagiarism and improve understandings of academic integrity. Known as URKUND, the software matches submitted text in student assignments against material from various sources: the internet, published books and journals, and previously submitted student texts. Click here for further information on the URKUND text-matching software.

### 6: **Student Responsibility**

6a **Workload**
The amount of time you will need to spend on study in this unit will depend on a number of factors including your prior knowledge, learning skill level and learning style. Nevertheless, in planning your time commitments you should note that for a 3cp unit the total notional workload over the semester or term is assumed to be 150 hours. These hours include time spent in classes. The total workload for units of different credit point value should vary proportionally. For example, for a 6cp unit the total notional workload over a semester or term is assumed to be 300 hours.

6b **Inclusion and Welfare**
Students who need assistance in undertaking the unit because of disability or other circumstances should inform their Unit Convener or Inclusion and Welfare as soon as possible so the necessary arrangements can be made.

6c **Participation requirements**
Participation in laboratory and tutorial sessions is a compulsory condition of this unit. A student must participate in at least 75% of the laboratory and 80% tutorial sessions in order to pass the unit. In the event that you cannot attend your assigned laboratory or tutorial session due to illness or unavoidable commitments and you wish to make up the session, consult the Current Session Availability List (available on Moodle) to determine if there is likely to be space available in your desired ‘make-up’ session. However be aware that this does not guarantee a place in a particular session as limits do apply to each session. You will need to provide a medical or counsellor’s certificate or a letter from your employer to be permitted to attend an alternate session.

Participation in ALL lectures is also highly recommended.

In all cases of absence, sickness or personal problems the onus is on you to ensure that the Unit Convener is informed. The minimum participation requirements must be met in order to pass the unit (regardless of supporting documentation). In the event of prolonged illness you should consult with the Unit Convener as soon as possible. If you feel that any problems are interfering with your studies please let the Unit Convener know. We will do our best to help you get the most out of Chemistry 1A and University life in general. Furthermore, the University has extensive counselling services that are available free of charge to all students.
These are found in the Health and Counselling Centre (Room: 1B124, phone: 6201 2351). The Centre offers help and advice in areas such as relaxation, financial and personal problems. The Academic Skills Centre (located in the library, phone: 6201 2361) offers help, advice and extra courses on effective study skills and general course guidance.

6d Withdrawal
If you are planning to withdraw please discuss with your unit convenor. Please see Withdrawal of Units for further information on deadlines.

6e Required IT skills
It is the student’s responsibility to ensure that they have basic computer keyboard skills and access to a personal computer and the internet (to access Moodle and regularly check university email accounts for important announcements relating to this unit).

To access your university email account, follow the link from the University of Canberra homepage (http://www.canberra.edu.au/) to My UC Portal. Login using your UC student username and password. Select ‘Study Tools from the top menu and then click on ‘Email’.

6f In-Unit Costs
There are relatively minor costs associated with this unit in the provision of appropriate protective safety equipment (laboratory coat and safety glasses), which are mandatory for all chemical laboratory classes. Laboratory coats and safety glasses are typically available from stores such as UC Union Shop (located on campus in the Hub) and/or work wear stores (such as Bunnings or Workin’ Gear (Fyshwick)).

A scientific calculator is also required in this unit. A scientific calculator is permitted in both written tests, but a graphics programmable calculator is prohibited.

(Note: To calculate your unit fees see: How do I calculate my fees?. The online UC Co-op Textbook Search is available for purchasing text books.)

6g Work placements, internships or practicums
Not applicable to this unit.

6h Additional information
In all cases of absence, sickness or personal problems it is the student’s responsibility to ensure that the unit convenor is informed. The minimum participation requirement must be met in order to pass the unit (regardless of supporting documentation).

Most information relevant to the unit will be posted on the Moodle website. Resources will be updated frequently throughout the semester.

Provision of information to the group: Announcements made at introductory sessions, through the Moodle Announcements Forum or the Moodle Discussion Forums, and laboratory classes are deemed to be made to the whole group. It is the responsibility of the student to ensure that they check for announcements on the Unit’s Moodle site (the Announcements forum messages are also emailed to student email). Students should ensure they check their student email regularly. The Moodle discussion forums will be checked by staff on a regular basis.

Mathematics Pathways Mastery Module:
Students are expected to complete the Mathematics Pathways module in their own time via the provided links within the Moodle site. Students are required to undertake the various included self-tests, but importantly to undertake the Mathematics Mastery Completion Test in their own time by the end of week 6. The results of this test will be forwarded to Unit convenors.
During week 7 students will undertake a Mathematics Verification test that will be invigilated (supervised). The results of this test will be compared with the Mathematics Mastery Completion test.

Students will need access to the internet via a standard notebook or desktop computer to work online with the Pearson’s Mathematics Pathways module. Students with an Apple iPad or Android tablet may access the module only if they use the Puffin Web Browser. Please consult your tutor for further details.

**Student Consultation**

Unit Convener/Lecturer for this unit is Associate Professor Dr Ashraf Ghanem (Room 3D41; Phone 6201 2089; Email: ashraf.ghanem@canberra.edu.au). The lecturer will be running some of the laboratory and tutorial classes and will be available for consultation during these classes. To arrange a consultation at another time, please email the Unit Convener/Lecturer to arrange an appointment. Casual, part-time demonstrators/tutors will also be involved in some laboratory and tutorial classes and will only be available for consultation during the actual laboratory and tutorial sessions.

**Feedback on Student Performance**

Students are able to monitor their performance in this unit by their responses to the laboratory questions, tutorial activities and Moodle quizzes, as well as additional self-assessment questions (available on Moodle).

**Science Resource Centre (SRC)**

The Science Resource Centre (SRC) is a facility dedicated to enhancing the learning and university experience for science students with particular emphasis on first year students. The SRC is set up with internet access, printing facilities and has a comfortable study area. Extra tutorials are run for several first year units. Location: 6B103. Contact Number: 6201 2298.

**Awards**

There are two awards given each year for Chemistry 1A: the John Wiley & Sons Award for Most Outstanding Student in Chemistry 1A and the John Wiley & Sons Award for Most Improved Student in Chemistry 1A. These awards are kindly donated by John Wiley & Sons and consist of a certificate and a $100 Wiley Book Prize.

### 7: Student Feedback

All students enrolled in this unit will have an opportunity to provide anonymous feedback on the unit at the end of the Semester via the Unit Satisfaction Survey (USS) which you can access by logging into MyUC via the UC homepage: [http://www.canberra.edu.au/home/](http://www.canberra.edu.au/home/). Your lecturer or tutor may also invite you to provide more detailed feedback on their teaching through an anonymous questionnaire.

As a result of student feedback, the following changes have recently been made to the unit:
- Provision of written feedback from tutors and demonstrators for laboratory and tutorial submissions.
- Reduction in the number of laboratory based assessment submissions (from 9 submissions to 5 submissions over the semester)
- Redesign of the tutorial program, and separation of the tutorial from the laboratory session to provide a more guided tutorial working environment.
8: Authority of this Unit Outline

Any change to the information contained in Section 2 (Academic content), and Section 5 (Assessment) of this document, will only be made by the Unit Convener if the written agreement of Head of program and a majority of students has been obtained; and if written advice of the change is then provided on the unit site in the learning management system. If this is not possible, written advice of the change must be then forwarded to each student enrolled in the unit at their registered term address. Any individual student who believes him/herself to be disadvantaged by a change is encouraged to discuss the matter with the Unit Convener.