School of Chemistry

CHEM103: Introductory Chemistry For Engineers

Subject Outline
Autumn, 2016
On-Campus
Wollongong

Subject Information
Credit Points: 6
Pre-requisite(s): Nil. (for students without NSW HSC Chemistry or equivalent, a two week bridging course is run in early February each year and is strongly recommended BUT ISN'T MANDATORY.
Co-requisite(s): Nil
Restrictions: Nil
Contact Hours: As per subject database

Subject Contacts
Subject Coordinator/Lecturer

<table>
<thead>
<tr>
<th>Name:</th>
<th>Dr Glennys O’Brien</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Building 18, Room 112</td>
</tr>
<tr>
<td>Telephone:</td>
<td>61 2 4221 3072</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:glennys_obrien@uow.edu.au">glennys_obrien@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times:</td>
<td>Email for appointment</td>
</tr>
</tbody>
</table>

Student Support and Advice
For general enquiries please contact EIS Central,

Location: 4.G12
Telephone: 61 2 4221 3491
Email: eis@uow.edu.au
Student Consultation and Communication

University staff receive many emails each day. In order to enable them to respond to your emails appropriately and in a timely fashion, students are asked to observe basic requirements of professional communication:

Consider what the communication is about
- Is your question addressed elsewhere (e.g. in the subject outline or, on the eLearning site)?
- Is it something that is better discussed in person or by telephone? This may be the case if your query requires a lengthy response or a dialogue in order to address. If so, see consultation times above and/or schedule an appointment.
- Are you addressing your request to the most appropriate person?

Specific email subject title to enable easy identification of issue
- Identify the subject code of the subject you are enquiring about (as staff may be involved in more than one subject) put this in the email subject heading. Add a brief, specific query reference after the subject code where appropriate.

Professional courtesy
- Address the staff member appropriately by name (and formal title if you do not yet know them).
- Use full words (avoid ‘text-speak’ abbreviations), correct grammar and correct spelling.
- Be respectful and courteous.
- Allow 3 – 4 working days for a response before following up. If the matter is legitimately urgent, you may wish to try telephoning the staff member (and leaving a voicemail message if necessary) or inquiring at the School Office.
- Please ensure that you include your full name and student number and identify your practical class or tutorial group in your email so that staff know who they are communicating with and can follow-up personally where appropriate.
# Table of Contents

Section A: General Information ............................................................................................................... 4  
Subject Learning Outcomes ................................................................................................................ 4  
Subject Description ............................................................................................................................. 4  
eLearning Space ................................................................................................................................. 4  
Lecture, Tutorial, Laboratory Times .................................................................................................... 4  
Readings, References and Materials .................................................................................................. 4  
   Textbooks ........................................................................................................................................ 4  
   Prescribed Readings (includes eReadings) .................................................................................... 4  
   Materials: ......................................................................................................................................... 4  
   Recommended Readings: ............................................................................................................... 5  
Recent Changes to this Subject .......................................................................................................... 5  
List of Topics Covered ........................................................................................................................ 5  
Section B: Assessment ........................................................................................................................... 6  
Assessment Summary ........................................................................................................................ 6  
Details of Assessment Tasks .............................................................................................................. 6  
Minimum Requirements for a Pass in this Subject ............................................................................. 7  
   Minimum Student Attendance and Participation ........................................................................ 7  
Scaling ................................................................................................................................................. 8  
Late Submission .................................................................................................................................. 8  
   Concrete report Late Submission Penalty – at 5% ......................................................................... 8  
Supplementary Assessments ............................................................................................................. 8  
System of Referencing Used for Written Work ................................................................................... 8  
Use of Internet Sources ...................................................................................................................... 8  
Plagiarism ............................................................................................................................................ 9  
Submission of Assessments ............................................................................................................... 9  
Assessment Return ............................................................................................................................. 9  
Section C: General Advice .................................................................................................................... 10  
University Policies ............................................................................................................................. 10  
Student Support Services and Facilities ........................................................................................... 11  
Student Etiquette ................................................................................................................................ 11  
Version Control Table ....................................................................................................................... 11
Section A: General Information

Subject Learning Outcomes

On completion of this subject, students should be able to:

1. Familiar with basic concepts in specific areas of chemistry;
2. Able to interpret written instructions and perform basic chemical experiments safely and effectively;
3. Able to record experimental results, and interpret and communicate conclusions based on observations;
4. Able to employ basic mathematics to solve quantitative chemical problems.

Subject Description


eLearning Space

This subject has materials and activities available via eLearning. To access eLearning you must have a UOW user account name and password, and be enrolled in the subject. eLearning is accessed via SOLS (student online services). Log on to SOLS and then click on the eLearning link in the menu column. For information regarding the eLearning spaces please use the following link:

http://uowblogs.com/moodlelab/files/2013/05/Moodle_StudentGuide-1petpo7.pdf

Lecture, Tutorial, Laboratory Times

All timetable information is subject to variation. Check latest timetabling information on the ‘Current Student’ webpage on UOW website or log into SOLS to view your personal timetable prior to attending classes.


Timetable information can be accessed from

Key University Dates can be accessed from

Readings, References and Materials

Textbooks

The following text(s) will need to be purchased by students enrolled in this class.


Prescribed Readings (includes eReadings)

Nil

Materials:

1. Your Subject Handbook (Lab Manual), containing details of the subject, laboratory instructions, templates for data collection and submission of lab reports and pre-labs as required. Preworkshop study materials, Part A, are also in the manual. A copy of the handbook is available as pdf in Moodle.
2. Moodle support materials: Look for the support materials for Workshops, Lab feedback Maths Assist, Box of useful tricks, Movies and animations.
3. See detailed weekly timetable of content and links in Moodle
Recommended Readings:
The following references complement the prescribed readings and textbooks:

Alternative First Year Chemistry texts can be found in the Library at 540.
Zeegers “Essential Skills for Science and Technology” Oxford University Press

Recommended readings are not intended as an exhaustive list, students should use the Library catalogue and databases to locate additional resources.

Recent Changes to this Subject
Nil

List of Topics Covered
The following are examples of the topics to be covered in this course. This is not an exhaustive list and will be subject to change.

1. Fundamentals: the language of chemistry, symbols, formulae, names of compounds, equations and quantities.
2. Matter on a Molecular Scale: Atoms, ions, molecules and chemical bonding
3. Matter on a Macro Scale: gases, liquids, solutions, colloids
4. Reactions: Thermochemistry – How Hot
   Thermodynamics – How likely
   Chemical Equilibrium – How far
6. Electrochemistry:
7. Applications
## Section B: Assessment

### Assessment Summary

<table>
<thead>
<tr>
<th>Assessment Item</th>
<th>Form of Assessment</th>
<th>Due Date</th>
<th>Return/Feedback Due Dates</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment 1</td>
<td>Laboratory Practical Reports (x4) &amp; Extended Investigation Lab Report</td>
<td>End of practical class (4); Extended Investigation report COB 31 May (wk 13)</td>
<td>Next lab class</td>
<td>15%</td>
</tr>
<tr>
<td>Assessment 2</td>
<td>Workshop Quick Quizzes (x5)</td>
<td>At completion of that workshop</td>
<td>Next workshop class</td>
<td>10%</td>
</tr>
<tr>
<td>Assessment 3</td>
<td>Online Quizzes (x5)</td>
<td>Notified in Moodle site</td>
<td>On submission following auto marking</td>
<td>15%</td>
</tr>
<tr>
<td>Assessment 4</td>
<td>Mid-session test</td>
<td>Wed week 8 lecture time</td>
<td>Within 21 days of due date</td>
<td>10%</td>
</tr>
<tr>
<td>Assessment 5</td>
<td>Final Examination</td>
<td>UOW Exam Week</td>
<td>Release of results</td>
<td>50%</td>
</tr>
</tbody>
</table>

### Details of Assessment Tasks

Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.

<table>
<thead>
<tr>
<th>Assessment 1</th>
<th>Laboratory Practical Reports (x4) &amp; Extended Investigation Lab Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due date</td>
<td>End of that practical class, Concrete report 31 May.</td>
</tr>
<tr>
<td>Weighting</td>
<td>15%</td>
</tr>
<tr>
<td>Submission</td>
<td>Submit a hardcopy to your tutor/demonstrator in class</td>
</tr>
<tr>
<td></td>
<td>Incomplete prelab prep? Marks will be no greater than 12/20 for classes with relab incomplete.</td>
</tr>
<tr>
<td>Type of Collaboration</td>
<td>Individual Assessment / Group Project</td>
</tr>
<tr>
<td>Subject Learning Outcomes</td>
<td>1-4</td>
</tr>
<tr>
<td>Marking Criteria</td>
<td>The marking criteria are described in the subject handbook.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment 2</th>
<th>Workshop Quick Quizzes (x5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due date</td>
<td>TBA</td>
</tr>
<tr>
<td>Weighting</td>
<td>10%</td>
</tr>
<tr>
<td>Submission</td>
<td>Submit a hardcopy to your tutor/demonstrator in class</td>
</tr>
<tr>
<td></td>
<td>Incomplete prelab prep? Marks will be no greater than 6/10 for classes with relab incomplete.</td>
</tr>
<tr>
<td>Type of Collaboration</td>
<td>Individual Assessment</td>
</tr>
<tr>
<td>Subject Learning Outcomes</td>
<td>1-4</td>
</tr>
<tr>
<td>Marking Criteria</td>
<td>The marking criteria are described in the subject handbook.</td>
</tr>
</tbody>
</table>
**Assessment 3**

<table>
<thead>
<tr>
<th>Due date</th>
<th>10pm Fri of weeks 4, 6, 9, 11, 13.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighting</td>
<td>15%</td>
</tr>
<tr>
<td>Submission</td>
<td>Complete online before 10pm on due date.</td>
</tr>
<tr>
<td>Type of Collaboration</td>
<td>Individual Assessment</td>
</tr>
<tr>
<td>Subject Learning Outcomes</td>
<td>1-4</td>
</tr>
<tr>
<td>Marking Criteria</td>
<td>N/a</td>
</tr>
</tbody>
</table>

**Assessment 4**

<table>
<thead>
<tr>
<th>Due date</th>
<th>Wed Week 8 in lecture time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighting</td>
<td>10%</td>
</tr>
<tr>
<td>Submission</td>
<td>For examinations – Test papers and answers must be submitted at the conclusion of the test.</td>
</tr>
<tr>
<td>Type of Collaboration</td>
<td>Individual Assessment</td>
</tr>
<tr>
<td>Subject Learning Outcomes</td>
<td>1-4</td>
</tr>
<tr>
<td>Marking Criteria</td>
<td>example questions and answers will be available before the test</td>
</tr>
</tbody>
</table>

**Assessment 4**

<table>
<thead>
<tr>
<th>Due date</th>
<th>TBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighting</td>
<td>50%</td>
</tr>
<tr>
<td>Submission</td>
<td>Exam papers and answers must be submitted at the conclusion of the exam.</td>
</tr>
<tr>
<td>Type of Collaboration</td>
<td>Individual Assessment</td>
</tr>
<tr>
<td>Subject Learning Outcomes</td>
<td>1-4</td>
</tr>
<tr>
<td>Marking Criteria</td>
<td>example questions and answers will be available before the test</td>
</tr>
</tbody>
</table>

**Minimum Requirements for a Pass in this Subject**

To receive a clear pass in this subject a total mark of 50% or more must be achieved. In addition, failure to meet any of the minimum performance requirements is grounds for awarding a Technical Fail (TF) in the subject, even where total marks accumulated are greater than 50%.

The minimum performance requirements for this subject are:

- obtain a grade of 40% in the final exam
- obtain an average mark of at least 50% in lab practical reports and Concrete project report
- meet the minimum participation requirements set out below.

**Minimum Student Attendance and Participation**

It is expected that students will allocate Insert 10 hrs based on credit points hours per week to this subject, including any required class attendance, completion of prescribed readings and assessment tasks.

Student attendance at tutorials (ie workshops) and practicals is compulsory and students must attend 100% of classes. Absences will require the submission of an application for Academic Consideration via SOLS and the presentation of suitable documentation, for example a Medical Certificate, to Student Central as soon as practical. For further details about applying for academic consideration visit the Student Central webpage:

Scaling
Scaling may occur in this subject at the end of session by the Unit Assessment Committee and/or Faculty Assessment Committee (FAC). Marks will only be scaled to ensure fairness/parity of marking across groups of students. Scaling will not affect any individual student’s rank order within their cohort. For more information refer to Assessment Guidelines – Scaling:

Late Submission
Late submission of an assessment task without an approved extension of the deadline is not acceptable. If you are unable to submit an assessment due to extenuating circumstances (e.g. medical grounds or compassionate grounds), you can make an application of academic consideration. Not all circumstances qualify for academic consideration. For further details about applying for academic consideration visit the Student Central webpage:

Lab reports and workshop quick quizzes are submitted at the end of each class, where that assessment occurred. Online quizzes are submitted at the end of the 3-4 week period allocated. Late submissions are not available for these assessments. Any issue arising must be addressed to the subject coordinator as soon as possible.

Concrete report Late Submission Penalty – at 5%
Late submission of an assessment task without an approved extension of the deadline is not acceptable. Marks will be deducted for late submission at the rate of 5% of the total possible marks for that particular assessment task per day. This means that if a piece of work is marked out of 100, then the late penalty will be 5 marks per day (5% of 100 possible marks per day). The formula for calculating the late penalty is: the total possible marks x 0.05 x number of days late. For the purposes of this policy a weekend (Saturday and Sunday) will be regarded as two days.

Notwithstanding this, students must complete all assessment tasks to a satisfactory standard and submit them, regardless of lateness or loss of marks, where submission is a condition of satisfactorily completing the subject.

Supplementary Assessments
Supplementary assessment may be offered to students whose performance in this subject is close to that required to pass the subject, and are otherwise identified as meriting an offer of a supplementary assessment. The precise form of supplementary assessment will be determined at the time the offer of a supplementary assessment is made.

Students can log on to SOLS and click on the link titled “Supplementary Assessment” to view any applicable offers or use the following link;

System of Referencing Used for Written Work
The Author-Date (Harvard) referencing system should, unless otherwise specified for a particular assessment (check Details of Assessment Tasks), be utilised. A summary of the Harvard system can be accessed on the Library website at: http://public01.library.uow.edu.au/refcite/style-guides/html/

Use of Internet Sources
Students are able to use the Internet to access the most current information on relevant topics and information. Internet sources should only be used after careful critical analysis of the currency of the information, the role and standing of the sponsoring institution, reputation and credentials of the author, the clarity of the information and the extent to which the information can be supported or ratified by other authoritative sources.
Plagiarism
The full policy on Academic Integrity and Plagiarism is found in the Policy Directory on the UOW website.

"The University's Academic Integrity and Plagiarism Policy, Faculty Handbooks and subject guides clearly set out the University's expectation that students submit only their own original work for assessment and avoid plagiarising the work of others or cheating. Re-using any of your own work (either in part or in full) which you have submitted previously for assessment is not permitted without appropriate acknowledgement. Plagiarism can be detected and has led to students being expelled from the University.

The use by students of any website that provides access to essays or other assessment items (sometimes marketed as 'resources'), is extremely unwise. Students who provide an assessment item (or provide access to an assessment item) to others, either directly or indirectly (for example by uploading an assessment item to a website) are considered by the university to be intentionally or recklessly helping other students to cheat. This is considered academic misconduct and students place themselves at risk of being expelled from the University."

Submission of Assessments
Refer to the submission requirements under the details of the individual assessments. Students should ensure that they receive a receipt acknowledging submission. Students will be required to produce this in the event that an assessment task is considered to be lost. Students are also expected to keep a copy of all their submitted assessments in the event that re-submission is required.

Assessment Return
Students will be notified when they can collect or view their marked assessment. In accordance with University Policy marked assessments will usually only be held for 21 days after the declaration of marks for that assessment.
Section C: General Advice

Students should refer to the Faculty of Science, Medicine and Health website for information on policies, learning and support services and other general advice.

University Policies

Students should be familiar with the following University policies:

a. Code of Practice – Teaching and Assessment

b. Student Charter

c. Code of Practice – Student Professional Experience, where relevant

d. Academic Integrity and Plagiarism Policy

e. Student Academic Consideration Policy

f. Course Progress Policy

g. Graduate Qualities Policy

h. Academic Complaints Policy (Coursework and Honours Students)

i. Policy and Guidelines on Non-Discriminatory Language Practice and Presentation

j. Workplace Health and Safety, where relevant

k. Intellectual Property Policy

l. IP Student Assessment of Intellectual Property Policy, where relevant

m. Policy on Ethical Objection by Students to the Use of Animal and Animal Products in Coursework Subjects, where relevant

n. Human Research Ethics Guidelines, where relevant

o. Animal Research Guidelines, where relevant

p. Student Conduct Rules and accompanying Procedures or Research Misconduct Policy for research students
Student Support Services and Facilities
Students can access information on student support services and facilities at the following link. This includes information on “Academic Support”, “Starting at University”, “Help at University” as well as information and support on “Career’s and Jobs”. [http://www.uow.edu.au/student/services/index.html](http://www.uow.edu.au/student/services/index.html)

Student Etiquette

Version Control Table

<table>
<thead>
<tr>
<th>Version Control</th>
<th>Release Date</th>
<th>Author/Reviewer</th>
<th>Approved By</th>
<th>Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20160216</td>
<td>Dr Glennys O’Brien – Subject Coordinator</td>
<td>Sonia Losinno – ADE Nominee</td>
<td>FINAL CHEM103 Autumn 2016 Subject Outline</td>
</tr>
</tbody>
</table>