Description: Chemistry 1

Subject | Cat-Nbr | Class | Term | Mode | Units | Campus
-------|---------|-------|------|------|-------|--------
CHE    | 1110    | 20335 | 1, 2003 | ONC  | 1.00  | TW MBA

Academic Group: FOSCI
Academic Org: FOS002
HECS Band: 2
ASCED Code: 010599

STAFFING
Examiner: Tania van den Ancker
Moderator: Ray Marshall

RATIONALE
This course introduces the student to the fundamentals of Chemistry. It is designed to provide basic knowledge and understanding for students who are training in disciplines that require the support of Chemistry or its applications.

SYNOPSIS
Topics include atomic theory, formulae, valency, bonding, chemical equations, periodic table, chemical bonding and structure, chemical calculations, chemical reactions, acids and bases, pH and redox reactions.

OBJECTIVES
On successful completion of this course students will be able to:

- demonstrate an understanding of the chemical and physical principles involved in the application of chemistry in the laboratory, in the community and in industry;
- demonstrate the basic knowledge of chemistry and associated calculations which are needed for higher level units in chemistry as well as other related discipline areas;
- demonstrate manipulative skills associated with the effective and safe use of chemical substances, associated chemical laboratory apparatus and equipment;
- demonstrate ability to solve practical problems associated with the laboratory classes; and
- be aware of aspects associated with safe laboratory procedures and activities.
TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Calculations: SI units, significant figures: Moles, percentage composition, empirical formula; Concentration, density.</td>
<td>20.00</td>
</tr>
<tr>
<td>2. Atomic Structure: Electronic structure of the atom; shells; subshells; orbitals; Electronic configuration, Pauli exclusion principle, Hund's rule; The periodic table; properties and trends; Stoichiometry, valency, oxidation states and formulae; Bonding; ionic-, hydrogen-, covalent-, and metallic compounds, naming, properties and structure; Lewis dot structure and VSEPR theory.</td>
<td>20.00</td>
</tr>
<tr>
<td>3. Chemical change: Chemical reactions; ppt; acid/base; oxidation, reduction, redox; equilibria - acid/base dissociation, pH, buffers; electrochemistry; displacement of metals, electrode potential, cell notation, Nernst equation.</td>
<td>40.00</td>
</tr>
<tr>
<td>4. Laboratory: The practical exercises are designed to illustrate many of the above items associated with the lectures, and develop manipulative skills and safe work practices. At the conclusion of the practicals the students will: understand the need for safety in the laboratory and safe work habits; be able to use appropriate laboratory techniques; have mastered some basic laboratory skills, as provided by the above laboratory experiments; have used some common laboratory pieces of equipment.</td>
<td>20.00</td>
</tr>
</tbody>
</table>

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at http://bookshop.usq.edu.au by entering the author or title of the text.


REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.


**STUDENT WORKLOAD REQUIREMENTS**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinations</td>
<td>4</td>
</tr>
<tr>
<td>Laboratory or Practical Classes</td>
<td>30</td>
</tr>
<tr>
<td>Lectures</td>
<td>26</td>
</tr>
<tr>
<td>Private Study</td>
<td>85</td>
</tr>
<tr>
<td>Report Writing</td>
<td>12</td>
</tr>
<tr>
<td>Tutorial</td>
<td>13</td>
</tr>
</tbody>
</table>

**ASSESSMENT DETAILS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>45MIN MIDSEM RESTRICTED TEST</td>
<td>20.00</td>
<td>20.00</td>
<td>Y</td>
<td>04 Mar 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(see note)</td>
</tr>
<tr>
<td>FORMAL REPORT</td>
<td>10.00</td>
<td>10.00</td>
<td>Y</td>
<td>04 Mar 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(see note)</td>
</tr>
<tr>
<td>LABORATORY REPORTS</td>
<td>10.00</td>
<td>10.00</td>
<td>Y</td>
<td>04 Mar 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(see note)</td>
</tr>
<tr>
<td>2.5 HOUR RESTRICTED EXAM</td>
<td>60.00</td>
<td>60.00</td>
<td>Y</td>
<td>END S1</td>
</tr>
<tr>
<td></td>
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<td>(see note)</td>
</tr>
</tbody>
</table>

**NOTES:**

. Examiner to advise date of 45min mid-semester restricted test.
. Examiner will advise due date for the Formal Report.
. Examiner to advise due dates for Laboratory Reports
Examination dates will be available during the Semester. Please refer to the
examination timetable when published.

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
   It is the students' responsibility to attend and participate appropriately in all activities
   (such as lectures, tutorials, laboratories and practical work) scheduled for them,
   and to study all material provided to them or required to be accessed by them to
   maximise their chance of meeting the objectives of the course and to be informed
   of course-related activities and administration. To maximize their chances of
   satisfying the objectives of the practical component of the course, students should
   attend and actively participate in the laboratory sessions in the course.

2 Requirements for students to complete each assessment item satisfactorily:
   To complete the examination satisfactorily, students must obtain at least 50% of
   the marks available for the examination. To complete the practical component
   satisfactorily, students must submit all the nominated practical reports and obtain
   at least 50% of the marks available for each report submitted.

3 Penalties for late submission of required work:
   If students submit assignments after the due date without prior approval then a
   penalty of 10% of the total marks available for the assignment will apply for each
   working day late.

4 Requirements for student to be awarded a passing grade in the course:
   To be assured of receiving a passing grade a student must submit all of the
   summative assessment items, achieve at least 50% in the examination (40/80) and
   at least 50% (10/20) for the laboratory and formal reports.

5 Method used to combine assessment results to attain final grade:
   The final grades for students will be assigned on the basis of the weighted aggregate
   of the marks obtained for each of the summative assessment items in the course.

6 Examination information:
   In a Restricted Examination, candidates are allowed access to specific materials
   during the examination. The only materials that candidates may use in the restricted
   examination for this course are: writing materials (non-electronic and free from
   material which could give the student an unfair advantage in the examination);
   calculators which cannot hold textual information (students must indicate on their
   examination paper the make and model of any calculator(s) they use during the
   examination.

7 Examination period when Deferred/Supplementary examinations will be held:
   Any Supplementary work for this course must be submitted by the end of week 2
   of the following semester. Deferred examinations will be held at a time suitable to
   both the student and the course examiner but must occur no later then the end of
   the next semester's exam period.

8 University Regulations:
   Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10
   Academic Misconduct for further information and to avoid actions which might
   contravene University Regulations. These regulations can be found at the URL

**ASSESSMENT NOTES**

9 Students who obtain an overall passing mark, but who do not perform satisfactorily in an examination, may, at the discretion of the examiner, be granted a supplementary examination. Students will be granted a deferred examination only if they perform satisfactorily in all other assessment items.

10 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. Students must retain a copy of each item submitted for assessment. This must be produced within 48 hours if required by the Examiner.