# Chemistry

## Course description

### Chemistry is a branch of science that deals with structure, composition and properties of matter found in living and non-living organisms. Chemistry concepts are usually characterized by interactions of atoms at the atomic and molecular level. It is central to the study of physical environments and biological system and as such the course carries an underlying content of Biology and Physics in addition to the chemistry content. The course involves consolidating content with practical experiments.

## Course objectives

- Student develop good understanding of the contents
- Student develop skills to initiate, plan and carry out an experiment, and the analytical skills
- Student develop awareness of the ethical standard expected in the scientific investigation

## Evaluation method and criteria

Assignments, Class Activity, Tests, Lab Report

## Textbooks

化学基礎 (数研出版)

## Course schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>Topic</th>
<th>Contents</th>
<th>Evaluation method and criteria</th>
<th>Alotted hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>4月</td>
<td>The Particulate Nature of Matter Separating Techniques</td>
<td>Particulate nature of matter Elements, compounds, mixtures and separating techniques</td>
<td>Class Activities, Assignments and Tests</td>
<td>6</td>
</tr>
<tr>
<td>5月</td>
<td>Elements and Periodicity</td>
<td>Elements of the periodic table</td>
<td>Class Activities, Assignments and Tests</td>
<td>8</td>
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<tr>
<td>6月</td>
<td>Atomic Structure</td>
<td>Structure of atoms and terms related to the atom Calculations involving number of protons, neutrons and electrons</td>
<td>Class Activities, Assignments and Tests</td>
<td>10</td>
</tr>
<tr>
<td>7月</td>
<td>Chemical Bonding</td>
<td>Types of chemical bonding</td>
<td>Class Activities, Assignments and Tests</td>
<td>4</td>
</tr>
<tr>
<td>9月</td>
<td>Chemical Bonding</td>
<td>Properties associated with the different chemical bonds</td>
<td>Class Activities, Assignments and Tests</td>
<td>6</td>
</tr>
<tr>
<td>10月</td>
<td>Chemical Equations Types of Chemical Reaction</td>
<td>Chemical equations and balancing</td>
<td>Class Activities, Assignments and Tests</td>
<td>10</td>
</tr>
<tr>
<td>11月</td>
<td>Mole Concept</td>
<td>Terms associated with the mole concept Basic calculation involving moles, volumes and masses</td>
<td>Class Activities, Assignments and Tests</td>
<td>10</td>
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<tr>
<td>12月</td>
<td>Mole Concept</td>
<td>Basic calculation involving moles, volumes and masses</td>
<td>Class Activities, Assignments and Tests</td>
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<tr>
<td>1月</td>
<td>Acids and Bases</td>
<td>Terms associated with acids and bases Volumetric Analysis</td>
<td>Class Activities, Assignments and Tests</td>
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</tr>
<tr>
<td>2月</td>
<td>Acids and Bases</td>
<td>Calculation involving acids and bases</td>
<td>Class Activities, Assignments and Tests</td>
<td>10</td>
</tr>
<tr>
<td>3月</td>
<td>Redox Processes</td>
<td>Terms associated with redox processes</td>
<td>Class Activities, Assignments and Tests</td>
<td>4</td>
</tr>
</tbody>
</table>