

# CHEM30009 Inorganic Chemistry IIIA

| <b>Credit Points:</b>                        | 12.50   |                |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
|--|---|----------------|----------------------------|----------------|--|------------------|-------|---|------------------|-------|---|------------------|-------|--|------------------|-------|
| <b>Level:</b>                                | 3 (Undergraduate)   |                |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| <b>Dates &amp; Locations:</b>                | This subject is not offered in 2013. Lectures, tutorials and practical work   |                |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| <b>Time Commitment:</b>                      | Contact Hours: Three 1-hour lectures per week for 4 weeks (semester 1); one 1-hour tutorial per week for 4 weeks (semester 1); three 1-hour lectures per week for 4 weeks and up to two 1-hour tutorials (semester 2); 7 hours of practical class per week for 4 weeks (semester 1). Total 58 hours. Total Time Commitment: Estimated total time commitment of 120 hours  |                |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| <b>Prerequisites:</b>                        | <p>One of</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEM20025 Physical and Inorganic Chemistry 2</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>CHEM20023 Inorganic Chemistry 2</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>CHEM20024 Organic and Inorganic Chemistry 2</td> <td>Not offered 2013</td> <td>12.50</td> </tr> </tbody> </table> <p># 610-240 Inorganic and Bio-inorganic Chemistry A (prior to 2009)</p> <p>Or both of</p> <p># 610-241 Inorganic and Bio-inorganic Chemistry B (prior to 2009)</p> <p># 610-245 Inorganic Chemistry Practical (prior to 2009)</p>  | Subject        | Study Period Commencement: | Credit Points: | CHEM20025 Physical and Inorganic Chemistry 2 | Not offered 2013 | 12.50 | CHEM20023 Inorganic Chemistry 2             | Not offered 2013 | 12.50 | CHEM20024 Organic and Inorganic Chemistry 2 | Not offered 2013 | 12.50 |  |                  |       |
| Subject                                      | Study Period Commencement:  | Credit Points: |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| CHEM20025 Physical and Inorganic Chemistry 2 | Not offered 2013  | 12.50          |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| CHEM20023 Inorganic Chemistry 2              | Not offered 2013  | 12.50          |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| CHEM20024 Organic and Inorganic Chemistry 2  | Not offered 2013  | 12.50          |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| <b>Corequisites:</b>                         | None  |                |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| <b>Recommended Background Knowledge:</b>     | None  |                |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| <b>Non Allowed Subjects:</b>                 | <p>Credit cannot be gained for this subject and any of</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEM30010 Inorganic Chemistry IIIB</td> <td>Year Long</td> <td>12.50</td> </tr> <tr> <td>CHEM30011 Inorganic Chemistry Practical III</td> <td>April</td> <td>6.25</td> </tr> <tr> <td>CHEM30016 Reactivity and Mechanism</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>CHEM30015 Advanced Practical Chemistry</td> <td>Not offered 2013</td> <td>12.50</td> </tr> </tbody> </table> <p>An additional non-allowed subject combination normally exists between this subject and CHEM30017 Specialised Topics in Chemistry B. However enrolment in CHEM30017 Specialised Topics in Chemistry B (with a restricted choice of topics) and this subject, may be approved by the subject coordinator.</p> | Subject        | Study Period Commencement: | Credit Points: | CHEM30010 Inorganic Chemistry IIIB           | Year Long        | 12.50 | CHEM30011 Inorganic Chemistry Practical III | April            | 6.25  | CHEM30016 Reactivity and Mechanism          | Not offered 2013 | 12.50 | CHEM30015 Advanced Practical Chemistry | Not offered 2013 | 12.50 |
| Subject                                      | Study Period Commencement:  | Credit Points: |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| CHEM30010 Inorganic Chemistry IIIB           | Year Long   | 12.50          |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| CHEM30011 Inorganic Chemistry Practical III  | April   | 6.25           |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| CHEM30016 Reactivity and Mechanism           | Not offered 2013  | 12.50          |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| CHEM30015 Advanced Practical Chemistry       | Not offered 2013  | 12.50          |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| <b>Core Participation Requirements:</b>      | For the purposes of considering applications for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005) and Students Experiencing Academic Disadvantage Policy, this subject requires all students to actively and safely participate in laboratory activities. Students who feel their disability may impact upon their participation are encouraged to discuss this with the Subject Coordinator and the Disability Liaison Unit. Hhttp://www.services.unimelb.edu.au/disability/  |                |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |
| <b>Contact:</b>                              | <p>Director of Third Year Studies</p> <p><b>Email: <a href="mailto:third-year-director@chemistry.unimelb.edu.au">third-year-director@chemistry.unimelb.edu.au</a> (mailto:third-year-director@chemistry.unimelb.edu.au)</b></p>   |                |                            |                |  |                  |       |   |                  |       |   |                  |       |  |                  |       |

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| <b>Subject Overview:</b>                      | This level 3 chemistry subject is for students who commenced studies in chemistry prior to 2008 and intend to complete a Chemistry major. This subject investigates aspects of inorganic chemistry. The subject includes lecture, tutorials and practical components.   |
| <b>Objectives:</b>                            | Upon completion of this subject, students should comprehend the concept of coordination for bonding and metal-ion reactivity, cluster molecules, organometallic species and metal-ion containing biomolecules. They should gain knowledge about the chemical processes occurring at the metal ion centre in catalytic processes ranging from synthetic and technological applications to biologically important enzymatic processes (for example photosynthesis, nitrogen fixation and fuel cells); understand the reasons for the different types of structures observed for such molecules and have developed a knowledge of the procedures for determination of the structures via spectroscopic and related techniques. In addition, students should have an appreciation of the electronic structure of metal complexes; the structure of the solid state; and apply concepts developed in relation to small molecule chemistry to catalysis in biological and non-biological systems. The practical component of this subject will consist of a number of experiments involving the synthesis and/or chemical and/or instrumental investigations of important classes of main group and transition metal coordination and organometallic compounds. |
| <b>Assessment:</b>                            | Practical component: Ongoing assessment in the form of 3 written reports on laboratory-based practical exercises, in addition to an oral-based assessment (viva), all due during semester 1 (30%). Lecture components: To address the diversity of material taught in the various modules of this subject, there will be several options for assessment. The assessment for the specific module will be announced in the first lecture. Option 1: One one-hour end of semester exam (80%) and one to two assignments conducted during the module (20%). Option 2: Several assignments (written and/or oral) conducted during the module (100%). Satisfactory completion of both theory and practical work is necessary to pass the subject.   |
| <b>Prescribed Texts:</b>                      | C E Housecroft and A G Sharpe, Inorganic Chemistry, 3rd Ed. Pearson Prentice-Hall, 2008.  |
| <b>Breadth Options:</b>                       | This subject potentially can be taken as a breadth subject component for the following courses:<br># <b>Bachelor of Arts</b> ( <a href="https://handbook.unimelb.edu.au/view/2013/B-ARTS">https://handbook.unimelb.edu.au/view/2013/B-ARTS</a> )<br># <b>Bachelor of Commerce</b> ( <a href="https://handbook.unimelb.edu.au/view/2013/B-COM">https://handbook.unimelb.edu.au/view/2013/B-COM</a> )<br># <b>Bachelor of Environments</b> ( <a href="https://handbook.unimelb.edu.au/view/2013/B-ENVS">https://handbook.unimelb.edu.au/view/2013/B-ENVS</a> )<br># <b>Bachelor of Music</b> ( <a href="https://handbook.unimelb.edu.au/view/2013/B-MUS">https://handbook.unimelb.edu.au/view/2013/B-MUS</a> )<br>You should visit <b>learn more about breadth subjects</b> ( <a href="http://breadth.unimelb.edu.au/breadth/info/index.html">http://breadth.unimelb.edu.au/breadth/info/index.html</a> ) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.  |
| <b>Fees Information:</b>                      | Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>   |
| <b>Generic Skills:</b>                        | This subject will provide the student with the opportunity to establish and develop the following generic skills: the ability to comprehend complex concepts and effectively communicate this understanding to the scientific community and in a manner accessible to the wider community; the ability to connect and apply the learnt concepts to a broad range of scientific problems beyond the scope of this subject; the ability to think critically and independently; the ability to problem-solving, and the ability to use conceptual models to rationalise observations.  |
| <b>Notes:</b>                                 | This subject is available for science credit to students enrolled in the BSc (pre-2008 degree), BASc or a combined BSc course.  |
| <b>Related Majors/Minors/Specialisations:</b> | Science credit subjects* for pre-2008 BSc, BASc and combined degree science courses   |