This unit of study relates plate tectonics to a) volcanoes and their hazards; b) geological processes in the deep crust; c) the formation of precious metal and gemstone ores around the Pacific Rim; and d) an understanding of how Earth’s materials (minerals, rocks, rock formations, lithospheric plates etc.) respond the forces that deform them. Methods of analysis involve studies at the microscopic scale (performed on thin sections) and the mesoscopic scale performed on hand specimens and outcrops. The unit includes a two to three days field trip to study an extinct volcano in NSW.
COURSE OUTLINE

Subduction zones are often viewed as giant factories in which oceanic lithospheres, and to a lesser extent older continental crusts and water-saturated sediments, are recycled back into the mantle, whereas new continental crust is created. Geothermal fields, volcanoes, ore deposits, earthquakes, mountain belts or sedimentary basins are the surface expression of dynamic deep processes in which the texture, the mineralogy and the geochemistry of hot rocks, including magmas, evolve in response to changing pressure, temperature, and the composition of fluids. Subduction zones provide a rich backdrop to explore many fundamental geological processes (weathering, erosion and sedimentation, metamorphism and partial melting, melt migration and crystallization, deformation and development of tectonic fabrics). They are prime locations for the cycling of key elements including carbon and hydrogen, and for the geochemical coupling between the continental crust, the ocean and atmosphere, and the mantle.

This Unit of Study relates the tectonics and geodynamics of subduction zones to: (a) volcanoes and their hazards; (b) geological processes in the deep crusts; and (c) the formation of precious metal and gemstone ores around the Pacific Rim. A problem solving approach is used to develop the skills required to understand the history of individual volcanoes and predict their future activity and hazards. The Unit includes an optional trip to the north island of New Zealand, or a two- to three-day field trip to study an extinct volcano in NSW. Practical work includes supervised and independent study of igneous systems, rocks, and minerals employing both microscope-based techniques and computer modeling. The unit pro-
provides knowledge relevant to all senior units in Geology and Geophysics.

Throughout this course, we will journey through subduction zones from the Earth surface down to the depths at which diamonds form. In weeks 1 to 5, Derek Wyman will address the formation of volcanoes, their eruption dynamics and morphologies, the geochemistry of their lavas and that of their associated felsic plutonic rocks. The origins of volcanoes lie deep in the mantle where partial melting occurs. Derek will show you how mantle melting is not always due to rising temperature and will describe the mechanisms through which the geochemistry of magma evolves. Finally, Derek will consider the processes involved in formation of new continental crust.

In week 6 and 7, we will consider evidence of how magmas evolve and the continental crust is formed. We will consider how elements cycle through subduction zones, building on knowledge from GEOS1003. Some of this recycling creates ore deposits. We will examine how humans have exploited natural geological processes to their own ends, by looking at how some common metals are concentrated and how this knowledge can be applied to predict where more can be found. You might be surprised to learn that some metals are concentrated by rain!

Finally from Week 10 to 13, Patrice Rey will introduce key Structural Geology concepts and tools to study and understand rocks deformation in hot environments. He will introduce structural features that commonly develop in subduction zones and other deep crust environments. Patrice will address the development of ductile shear zones and related structures and microstructures that can be analyzed to infer the direction and sense of shearing. The development of foliation (planar fabric) and lineation (linear fabric) is an important consequence of ductile deformation. Patrice will show how to analyze these fabrics to gain information on the orientation and tectonic evolution of past subduction zones.
LEARNING RESOURCES

An eLearning site will be used to support the learning and teaching activities in this course. It is important to note that any material provided through eLearning is designed to support, rather than replace, face-to-face activities.

To access the eLearning site follow the instructions below:

1. Open a browser window
2. Go to the University of Sydney home page (http://sydney.edu.au/)
3. Select the 'Current Students' link
4. Choose ‘Learning Management System (LMS)’ from the menu far right
5. Enter your UniKey login name and password
6. Select the link of the Subject you wish to look at from your 'My eLearning sites' home page.

Lecture notes of the structural geology module are here: http://www.geosci.usyd.edu.au/users/prey/Teaching/Geos-2123/index.html

This website is an *Introduction to Structural Geology*. The content of this course is split between GEOS2114 and GEOS2124. In GEOS 2114-2914 we will cover the following sections: *Introduction, Shear Zones, Fabrics, and Strain Analysis* only. The other sections (*Fractures and Faults, Paleostress Analysis, Folds and Folds Systems*) will be covered in GEOS 2124-2924 in the second semester.

In addition to Patrice’s website site, compulsory assessable reading includes: Chapters 1, 4, 9, 11, 12 of the following textbook (also used in 3re Year and available at the bookstore):

**Title:** Earth Structure (Second Edition)
**Authors:** Ben A. Van der Pluijm, Stephen Marshak
**Publisher:** Norton ISBN: 0-393-92476-X
Figures from the freely available webtext “Earth’s Dynamic Systems” by W.K. Hamblin and E.H. Christiansen are used frequently and denoted by the chapter they are found in. For example EDS3 refers to a figure from chapter 3.

The chapters can be downloaded via: http://www.earthds.info/index.html

Optional Additional Reading


Frisch, W., Meschede, M., Blakey, R. 2011. Plate Tectonics Continental Drift and Mountain Building Springer-Verlag, 212p.


Gribble, C.D. & Hall, A.J., 1993. A practical introduction to Optical Mineralogy. UCL Press - new printer from old version. Cheapish book on optical mineralogy; useful for ALL petrological courses this year and ?the future. A much better investment than the micrographic atlases of textures, which have reproductions of rocks and minerals that never look like the ones you see..... Note that the book covers much the same ground as "Hyperpetmag " which is available on the web or as a Cd-Rom.


Winkler, H., 1974. Petrogenesis of metamorphic rocks, 4th ed. Springer-Verlag. This is a comprehensive, albeit dated, approach to the study of metamorphic rocks. It is a good addition to study in Years 2 and 3, but outgrown by Year 4. However, you may pick up a cheap copy that predates the Bucher & Frey rewrite.


STUDY COMMITMENT

Students enrolled in any 6 credit point Junior unit of study offered by the Faculty of Science should consider spending up to 12 hours per week on that unit during the 13 teaching weeks of the semester and the study vacation. In GEOS-2114/2914 this involves:

Lectures: You will have 13 two-hour lectures divided into 2 modules:
- Volcanoes, plates and ore deposits (9 lectures)
- Structural geology of hot rocks and magmas (4 lectures)

The lectures are intended to guide you in your study textbooks.

Practicals: You will have 12 two-hour practical classes. One session will be devoted, in part, to developing presentation skills. You will work individually and in small groups on a suite of qualitative and quantitative questions and problems. Tutors will be present to assist you.

Independent Study: You are expected to do up to 12 hours (per week) of independent study. Use this time to:
- Before classes: get ready for lecture and practical classes by reading through the material (min. 2 hours);
- After classes: read through and understand your lecture notes, source and digest complementary information from relevant textbooks, and reliable sources from the Internet (min. 2 hours);
- Work through the practical problems, and write your practical reports (min. 4 hours);

Study Tips: It is up to you to devise a study plan that best suits you. Stick to it, attend lecture and practical classes and involve yourself in all learning experiences. This will have a considerable impact on your exam preparation and performance.
LEARNING OUTCOMES AND GRADUATE ATTRIBUTES

Learning Outcomes:
1/ understand key petrological and structural concepts relevant to deep crustal and mantle processes;
2/ be able to apply these concepts to analyse igneous rocks, and unravel their mineralogy, structure and geochemical evolution;
3/ be able to identify the main types and settings of Earth’s volcanism
4/ understand the main variables that contribute to the evolution and diversity of magmas;
5/ have a basic understanding of the selective processes associated with the formation of ore deposits and factors that contribute to economically and socially responsible resource extraction;
6/ be able to construct accurate cross-sections and analyze geological maps to understand the geology in 3 dimension;
7/ be able to perform kinematic analysis across shear zones, and document the style and magnitude of strain;
8/ source and analyse information, assess its reliability and significance;
9/ to communicate scientific information appropriately, both orally and through written work;
10/ to engage in team and group work for scientific investigations and for the process of learning;
11/ develop a sense of responsibility, ethical behaviour and independence as a learner and as a scientist.

Graduate Attributes
Graduate Attributes are generic attributes that encompass not only technical knowledge but additional qualities that will equip students to be strong contributing members of professional and social communities in their future careers. The overarching graduate attributes identified by the University relate to a graduate’s attitude or stance towards knowledge, towards the world, and towards themselves.
These are understood as a combination of five overlapping skills or abilities, the foundations of which are developed as part of specific disciplinary study. For further details please refer to the Science faculty website at: [http://www.itl.usyd.edu.au/graduateattributes/](http://www.itl.usyd.edu.au/graduateattributes/)

<table>
<thead>
<tr>
<th>Graduate Attributes</th>
<th>Learning Outcomes</th>
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</thead>
<tbody>
<tr>
<td><strong>A Research and Inquiry</strong></td>
<td></td>
</tr>
<tr>
<td>A1 Apply scientific knowledge and critical thinking to identify, define and analyse problems, create solutions, innovate &amp; improve current practices.</td>
<td>1 to 8</td>
</tr>
<tr>
<td>A2 Gather, evaluate and deploy information relevant to a scientific problem.</td>
<td>6 to 8</td>
</tr>
<tr>
<td>A3 Design and conduct investigations, or the equivalent, and analyse and interpret the resulting data.</td>
<td>2, 6 to 8</td>
</tr>
<tr>
<td>A4 Critically examine the robustness and validity in scientific argument and discourse, and evaluate the relative importance of ideas.</td>
<td>6 to 8</td>
</tr>
<tr>
<td><strong>B Information Literacy</strong></td>
<td></td>
</tr>
<tr>
<td>B1 Use a range of searching tools (such as catalogues and databases) effectively and efficiently to find information.</td>
<td>8</td>
</tr>
<tr>
<td>B2 Access a range of information sources in the science disciplines, for example books, reports, articles, patents and company standards.</td>
<td>8</td>
</tr>
<tr>
<td>B3 Critically evaluate the reliability and relevance of information in a scientific context.</td>
<td>2, 6 to 8</td>
</tr>
<tr>
<td>B5 Use information technology to gather, process, and disseminate scientific information.</td>
<td>8 to 10</td>
</tr>
<tr>
<td><strong>C Communication</strong></td>
<td></td>
</tr>
<tr>
<td>C1 Explain and present ideas to different groups of people in plain English.</td>
<td>9, 10</td>
</tr>
<tr>
<td>C2 Write and speak effectively in a range of contexts and for a variety of different audiences and purposes.</td>
<td>9, 10</td>
</tr>
<tr>
<td>C4 Present and interpret data or other scientific information using graphs, tables, figures and symbols.</td>
<td>8, 9, 10</td>
</tr>
<tr>
<td>C5 Work as a member of a team, and take individual responsibility within the group for developing and achieving group goals.</td>
<td>9, 10</td>
</tr>
<tr>
<td>C6 Take a leadership role in successfully influencing the activities of a group towards a common goal.</td>
<td>9 to 11</td>
</tr>
<tr>
<td><strong>D Ethical, Social and Professional Understanding</strong></td>
<td></td>
</tr>
<tr>
<td>D1 Demonstrate an understanding of the significance and scope of ethical principles, both as a professional scientist and in the broader social context, and a commitment to apply these principles when making decisions.</td>
<td>11</td>
</tr>
<tr>
<td>D2 Appreciate the importance of sustainability and the impact of science within the broader economic, environmental and socio-cultural context.</td>
<td>11</td>
</tr>
<tr>
<td><strong>E Personal and Intellectual Autonomy</strong></td>
<td></td>
</tr>
<tr>
<td>E1 Evaluate personal performance and development, recognise gaps in knowledge and acquire new knowledge independently.</td>
<td>8, 11</td>
</tr>
<tr>
<td>E2 Demonstrate flexibility in adapting to new situations and dealing with uncertainty.</td>
<td>8, 9, 10</td>
</tr>
<tr>
<td>E3 Reflect on personal experiences, and consider their effect on personal actions and professional practice.</td>
<td>11</td>
</tr>
<tr>
<td>E4 Set achievable and realistic goals and monitor and evaluate progress towards these goals.</td>
<td>11</td>
</tr>
<tr>
<td>E5 Demonstrate openness and curiosity when applying scientific understanding in a wider context.</td>
<td>11</td>
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</tbody>
</table>
MARKING SCHEME & ASSIGNMENT MILESTONES

ALL assessment tasks are compulsory. They are intended to help you demonstrate what you have learned relatively to the goals of the unit of study. They also encourage you to work with the material, but should not dominate your approach to learning. See them as learning activity, accompanying and complementing those listed earlier.

Assessment of this unit of study is based on achievement of specific learning objectives (listed in the module outlines) demonstrated in a combination of assignments, tests examination and practical work. Satisfactory performance in ALL aspects of assessment is necessary to ensure a pass in this unit.

In addition, USyd students must be able to express themselves accurately by clear, efficient use of the English language in their written work. Spelling, grammar, punctuation and correct use of language will be taken into account when written reports and examination work are assessed. Students should refer to the University’s WriteSite (http://writesite.elearn.usyd.edu.au/) if they are looking for guidance on grammar and other aspects of academic and professional writing. Reference style: Written assignments will employ the reference style of the Australian Journal of Earth Sciences, available online from the library. The appropriate endnote file can be obtained from:
http://endnote.com/downloads/style/australian-journal-earth-science

You are responsible for understanding the University policy regarding assessment and examination, which can be found in the University Policy Register at http://sydney.edu.au/policies/.

All summative assessments (e.g. that evaluate learning) are marked.
and have mark standards that must be achieved to be eligible for each grade in your final result. Refer to Chapter 3 of this UoS outline for details on Grades.

Practical reports (25%), field trip (15%), project/report (5%), quiz (5%) and final exam (50%)

Late practicals attract a mark penalty of 10% per day unless a special consideration request is approved. Special consideration forms will be considered as a basis for extension of assignment deadlines. Missing compulsory reports lead to an Absent Fail (AF).

GEOS 2914: Practicals with more in-depth analysis of petrography and petrology concepts and principles (15%; No Element Project).

<table>
<thead>
<tr>
<th>Practical Reports and Quiz</th>
<th>Due date*</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Igneous practical week 2: 2%</td>
<td>week 3</td>
<td>1-4, 9-11</td>
</tr>
<tr>
<td>Igneous practical week 3: 2%</td>
<td>week 4</td>
<td>1-4, 9-11</td>
</tr>
<tr>
<td>Igneous practical week 4: 2%</td>
<td>week 5</td>
<td>1-4, 9-11</td>
</tr>
<tr>
<td>Igneous practical week 5: 2%</td>
<td>week 6</td>
<td>1-4, 9-11</td>
</tr>
<tr>
<td>Igneous practical week 6: 2%</td>
<td>week 7</td>
<td>1-4, 9-11</td>
</tr>
<tr>
<td>Igneous practical week 7:</td>
<td>week 8</td>
<td>1, 2, 6</td>
</tr>
<tr>
<td>Igneous practical week 8: Field trip - 15%</td>
<td>week 9</td>
<td>1, 2, 3, 8, 10, 11</td>
</tr>
<tr>
<td>Igneous practical week 9: Project Due 5%; Quiz: 5%</td>
<td>week 10</td>
<td>1, 2, 5, 8, 9, 10, 11</td>
</tr>
<tr>
<td>Structural geology practical week 10: 4%</td>
<td>week 11</td>
<td>1, 2</td>
</tr>
<tr>
<td>Structural geology practical week 11: 4%</td>
<td>week 12</td>
<td>1, 2, 6</td>
</tr>
<tr>
<td>Structural geology practical week 12: 4%</td>
<td>week 13</td>
<td>1, 2, 7</td>
</tr>
<tr>
<td>Structural geology practical week 13: 3%</td>
<td>week 13</td>
<td>7, 8</td>
</tr>
</tbody>
</table>

*All reports are compulsory and due at the START (first 10 mn) of the following week’s practical class.

We encourage students to collaborate in understanding all the questions since the objective is to understand concepts and develop your problem solving ability. However all assignments must be completed individually. Cheating and plagiarism are not tolerated, please read the University policies on Academic Dishonesty and Plagiarism in Coursework:
LECTURES & PRACTICALS SCHEDULE

Volcanoes, plates and ore deposits
Structural geology of hot rocks and magmas
<table>
<thead>
<tr>
<th><strong>Volcanoes, Plates and Ore Deposits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lectures Tuesday Afternoon 2pm - 4 pm</strong></td>
</tr>
<tr>
<td><strong>Carslaw room 408</strong></td>
</tr>
</tbody>
</table>

| **W1: Subduction zone: An overview** | **Rock (re-)familiarisation: Hand specimen characteristics** |
| Where: Plate boundaries | |
| How: Dynamics, morphology, subduction Initiation | |
| Arc evolution – Back arc development | |
| Slab versus wedge melting, cold or hot fingers | |

| **W2: From microscopic minerals to volcanic landforms** | **Microscope introduction** |
| Minerals & the microscope: polarised light, cross polars, diagnostic | |
| Volcanoes as surface expression of magma systems: Lava plateaus, Shield volcanoes, cinder volcanoes, composite volcanoes, calderas | |

| **W3: Volcanic rocks as a finger print of deep processes** | **Mafic rocks under the microscope** |
| Eruption syles and classifications: pyroclastics vs flows; falls. flows, & surges; plinian vs vulcanian; explosivity & dispersion | |
| Understanding magma evolution: Bowens reaction series; upper mantle melting | |

| **W4: From Bbsalts to rhyolites** | **Intermediate rocks under the microscope** |
| Crystal fractionation and magma evolution | |

| **W5: Volcanic features & case studies** | **Felsic volcanic rocks under the microscope** |
| Volcanic features and primary to tertiary hazards case studies | |

| **W6 Geochemical evidence of magma evolution** | **Melt formation and magma evolution** |
| | |

| **W7: Continental arcs and the development of continental crust** | **Granitic rocks under the microscope** |
| Underplating, and crustal differentiation | |

| **W8: Elemental cycling in subduction** | **Ore elements and minerals** |
| Varieties of ore deposits; ore deposits in a tectonic context; weathering and Australian ore deposits | |

| **W9: Mafic magmas in the crust** | **Layered mafic intrusions and associated ores in hand specimen and under the microscope** |
| Layered mafic intrusions: evidence for complex magma evolution processes | |
### Structural geology of hot rocks and magmas

<table>
<thead>
<tr>
<th>Lectures Tuesday Afternoon 2pm - 4 pm Carslaw room 408</th>
<th>Practicals Tuesday Morning 9-11am or 11am-1pm or Wednesday 10-12 non, Madsen Petrology Lab 332</th>
</tr>
</thead>
</table>
| **W10: Introduction to Structural Geology**            | Geological maps ... *in 3D*  
The concepts of topographic contours and structural contours |
| Pre-lecture compulsory reading: Sld1.html to Sld6.html (Patrice website) & Chapter 1 (VdP&M textbook): Overview | |
| **W11: Ductile shear zones and kinematic analysis**     | a/ Accurate geological cross-sections from geological maps.  
b/ Ductile shear zones and microstructures |
| Pre-lecture compulsory reading: Sld34.html to Sld 39.html (Patrice website) & Chapter 12 (VdP&M textbook): Ductile shear zones, Textures and Transposition | |
| **W12: Tectonic Fabrics: Foliations and lineations**    | a/ Probing further the depth of geological maps.  
b/ Foliations and lineations |
| Pre-lecture compulsory reading: SldFab01.html to SldFab08.html (Patrice website) & Chapter 11 (VdP&M textbook): Fabrics: Foliations and lineations | |
| **W13: Strain and strain analysis**                     | Measuring strain using the Fry method |
| Pre-lecture compulsory reading: Sld40.html to Sld48.html (Patrice website) & Chapter 4: Deformation and strain and Chapter 9: Ductile deformation Processes (VdP&M textbook) | |


NB3: The above lecture notes and textbook chapters are pre-lecture compulsory reading. Lecture time is dedicated to reflect on, to consolidate and to strengthen the learning in an interactive and collaborative environment. It is critical that students come to this class prepared by having read and understood - as much as they can - the reading material.

Questions? patrice.rey@sydney.edu.au

A great App to learn 3D structural geology: [http://visible-geology.appspot.com/](http://visible-geology.appspot.com/)
The Islands of the Four Mountains in Alaska’s Aleutian chain are seen in this photograph taken from the International Space Station (ISS). The islands are the upper slopes of volcanoes that rise from the sea floor. (Source: NASA Earth Observatory)

3

HOUSE KEEPING

Marking and distribution of grades

Policy and academic honesty

The Islands of the Four Mountains in Alaska’s Aleutian chain are seen in this photograph taken from the International Space Station (ISS). The islands are the upper slopes of volcanoes that rise from the sea floor. (Source: NASA Earth Observatory)
MARKING AND DISTRIBUTION OF GRADES

Marks for the assessment tasks and grades awarded for the unit will conform to the University’s assessment policies and procedures. A recent change to this policy requires that marks be awarded relative to a set of standards that describe a graduated hierarchy of the levels of achievement. The marks assigned to the various grades pass, credit, distinction, high distinction remain as they were prior to the change in the policy. The grades are described below along with the criteria that will be used to identify the various levels of achievement. Note the acknowledgement of the several sources (e.g. SLS 2014) from which these grade descriptors were modified; given below, see section on plagiarism).

In reference to these grades students should note that:

a) all marked assessment tasks, with the possible exception of practicals, will normally contain an at least one item that will enable the full range of achievement levels to be demonstrated, although students should note that some, and perhaps the majority of the individual items, activities or questions presented in each of the assessment tasks will be intended to establish that students have achieved a pass or credit level of achievement.
b) that distinctions and high distinctions would normally only be awarded to students who have performed at a high level in all assessment tasks – in this context ‘performed at a high level in all assessment tasks’ means that distinction students will have achieved a credit minimum in all individual items of assessed work and will have achieved a distinction level of achievement (or better) for the majority (>75%) of the assessment tasks. High distinction students will have achieved a distinction minimum in all individual items of assessed work and will have achieved a high distinction level of achievement for the majority (>75%) of the assessment tasks.

**Fail (Below 50%)**

Work may fail for any or all of the following criteria:

- No answer or response is provided
- Does not address or otherwise answer the question
- Contains numerous minor errors or presents a significant misconception
- Presents irrelevant material
- No evidence of research or analysis
- Presents a significantly inaccurate or flawed argument
- The answer is incomprehensible or difficult to understand due to significant problems with grammar, expression or structure

**Credit (Between 65% and 74%)**

Work awarded a credit grade will usually achieve the following minimum standards or present the described characteristics:

- Presents relevant material in a superficial manner or in a simplistic descriptive style
- Correctly identifies key point or points (facts) but does not develop an appropriate explanation or argument if this is required
- Contains some minor errors or presents minor inaccuracies and misconceptions
- Little or no evidence of in-depth analysis or deep understanding of the concept
- Answers can be understood but may be poorly worded or somewhat flawed due to poor grammar, expression or structure

**Pass (Between 50% and 64%)**

Work awarded a passing grade will usually achieve the following minimum standards or present the described characteristics:

- An appropriate, accurate and reasonable detailed answer or response is provided
- Appropriate key point or points (facts) and/or concepts clearly presented without significant errors or misconceptions
- Presents relevant material concisely with facts clearly integrated into the explanation
- Accurate quotation and/or source identification when appropriate.
- Evidence of some independent research or critical analysis of concept or problem
- Answers are easily understood with both clear expression and structure if appropriate
**Distinction (Between 75% and 84%)**

Work awarded a distinction grade will usually achieve the following minimum standards or present the described characteristics:

- Accurately answers the question in a convincing, confident manner
- Presents relevant material accurately in a concise manner or with the facts well-integrated into a comprehensive explanation or argument
- Accurate quotation and/or source identification when appropriate.
- Evidence of extensive independent research
- Evidence of extensive critical analysis of concept, and/or innovative perspective on the topic, and/or deep understanding of problem
- Answers are well written, with clear structure and cogent expression

**High Distinction (Above 85%)**

Work awarded a distinction grade will usually achieve the following minimum standards or present the described characteristics:

- Accurately answers the question in an impressive, compelling, or highly persuasive manner
- Presents relevant material accurately in a thoroughly convincing or forceful manner or with the facts well-integrated into an extended and comprehensive explanation or argument
- Accurate quotation and/or source identification when appropriate.
- Evidence of exhaustive independent research
- Evidence of extensive critical analysis of concept, and/or innovative perspective on the topic, and/or deep understanding of problem
- Answers demonstrate striking originality, an innovative approach, or impressive analytical skill
- Answers are exceptionally well written, with excellent structure expression
- Is otherwise exceptional in some way

The completion of all of the assignments in this unit of study will contribute to the Graduate Attributes set by the University of Sydney:

Graduates of the Faculty of Science will be able to create new knowledge and understanding through the process of research and inquiry, use information effectively in a range of contexts, work independently and sustainably, in a way that is informed by openness, curiosity and a desire to meet new challenges, hold personal values and beliefs consistent with their role as responsible members of local, national, international and professional communities, recognise and value communication as a tool for negotiating and creating new understanding, interacting with others, and furthering their own learning.

With the exception of values and beliefs, which are mainly addressed in lectures relating to mineral deposits, the assessment tasks of this unit are intended to collectively enhance the above graduate attributes.
POLICY FOR ACADEMIC HONESTY

Academic dishonesty is discussed in the University’s Policy for Academic Honesty in Coursework and you are responsible for upholding all components of the policy. There are some components that need clarification for this unit, due to the nature of the written assignments. Specifically:

Section 3. Academic dishonesty

(1) The University procedures relating to academic dishonesty must be invoked where an examiner considers that the student has presented another person’s ideas, findings or written work as his or her own by copying or reproducing them without due acknowledgment of the source and with the intent to deceive the examiner.

By way of an example of how such acknowledgment should be indicated, the grade descriptors on the previous page are modified from a number of University sources including the University of Sydney Faculty of Science, Academic Board, Sydney Law School and Sydney Business School websites http://sydney.edu.au and in particular Unit of Study Outlines e.g. LAWS5000 Foundations of Law, Semester One, 2014, Unit of Study Outline which would be properly cited using the standard Harvard format Sydney Law School 2014 (SLS 2014): LAWS5000 Foundations of Law, Semester One, 2014, Unit of Study Outline. Sydney Law School, University of Sydney. Sydney, NSW, Australia. 38 pp.
(2) It is reasonable to consider that the student has intended to deceive the examiner where substantial portions of the work submitted for assessment were copied from another student, or from the work of a former student, in a manner which clearly exceeds the boundaries of legitimate co-operation or group work.

It is acceptable, and encouraged, to work with other students. Sometimes we learn things best from our peers. However, it is not acceptable to (1) submit work that is identical to that of another student who is currently or was previously enrolled in this unit of study and/or (2) use previously marked exercises to create your work. While the intellectual ideas that underlie your answers may be garnered as part of a group, you must independently create your own tables, graphs, and wording when answering questions for submitted work.

You are advised that if you utilise old assignments from students who are enrolled in this unit or have previously taken this unit for assistance in their own work you will be "submitting another student's work". For the purposes of this course, students who use old assignments and the students who provide them violate the policy and will be disciplined to the full extent of the policy, which can include expulsion from the University. All other components of the policy are applicable as stated in the Policy on Academic Honesty in Coursework.

Note that under new University policy, all written work must be submitted to “Turnitin” text matching software that “checks submitted assignments for originality against other students’ assignments, against current and archived Internet content, and against the content of major professional journals, periodicals and business publications, and can create an originality report for submitted assignments”.

EPA/DEDI Sahputra