Undergraduate Course Outline

MINE4910 - 6UOC
Mining in a Global Environment

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INFORMATION ABOUT THE COURSE

Course Description

This course provides students with the tools necessary to meet the challenges of working for mining companies as mining engineers and managers in an international (and/or remote Australian) setting. The focus will be on developing countries and an aim will be to draw comparisons between the Australian and international contexts. The course will draw extensively on case studies. It will provide an international perspective of mining; governance and regulatory frameworks; financing; mining companies as agents of change; cross-cultural management; gender; small-scale mining; indigenous communities; community engagement; the resource curse; and climate change impacts on mining.

Assumed Background

This course assumes that students have attained a certain level of maturity to enable them to understand the issues involved. It will be thus suitable for final year mining engineering students. Students should have completed MINE3910 Socio-Environmental Aspects of Mining.

Course Content

This course will require an evaluation and application of at least the following topics:

- International perspectives on mining globally
- Governance issues in developing countries
- Financing international mining projects – roles of government & private banks – Equator Principles
- The role, responsibilities and influence of major mining companies in developing countries
- Small scale mining – importance and role with respect to large companies:
  - Blood diamonds – blood gold – Kimberley process
- Cross cultural management – theory and practice
- Environmental economics – e.g. resource rich v resource poor countries – the resource curse?
- Social impact of mining on women - gender and the mining industry
- Principles of community engagement in international settings;
- Climate change and implications.

AIMS, LEARNING OUTCOMES AND GRADUATE ATTRIBUTES

Course Aims

This course aims to provide students with the tools necessary to meet the challenges of working for mining companies as mining engineers and managers in an international setting.

Learning Outcomes

It is intended that students will be able to demonstrate an understanding of:

- Legal, political and cultural contexts of mining in international locations;
- The application of sustainable mining practices to mining globally;
- The global impacts of mining coal, uranium, gold, copper, nickel and other significant commodities;
- Cross cultural issues;
- Issues affecting mining engineers working for mining companies operating in developing countries.
Graduate Attributes

This course will contribute to the development of the following graduate attributes:

- Understanding of the discipline in its interdisciplinary context;
- Rigor in analysis, critique, and reflection;
- Ability to apply knowledge and skills to solving problems;
- Ethical practitioners;
- Capable of effective communication;
- Information literate;
- Digitally literate;
- Capable of initiating as well as embracing change;
- Collaborative team workers;
- Capable of independent, self-directed practice;
- Capable of lifelong learning;
- Capable of operating within an agreed code of practice;
- Capable of applying their discipline in local, national and international contexts;
- Culturally aware and capable of respecting diversity and acting in socially just and responsible ways;
- Capable of environmental responsibility;
- Having Health, Safety, Environment and Community (HSEC) consciousness;
- Awareness of sustainability, multi-cultural and global issues.

REFERENCE RESOURCES

Support material for this course including copies of lecture PPTs, recommended readings, assignments etc. can be found on Moodle, as made available during the semester. All correspondence with students and any information regarding changes in the lecture schedule and assignment dates will be done through Moodle. All assignments must be submitted through Moodle. It is important that students regularly check Moodle for changes in calendar events and for messages.

Recommended Texts

There are no set textbooks for this course. Students will be expected to research topics and case studies in depth through various media including academic and professional journals, academic books, news media, current affairs programs, documentaries, the internet etc.
## Learning Activities Summary

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Activity</th>
<th>Hrs</th>
<th>Area</th>
<th>Content</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thurs 05/03</td>
<td>Lecture/Workshop</td>
<td>3</td>
<td>Course</td>
<td>Introduction. Mining and sustainable development. International perspectives on mining. The role of the UN treaties and summits.</td>
<td>RT</td>
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<tr>
<td>2</td>
<td>Thurs 12/03</td>
<td>Lecture/Workshop</td>
<td>3</td>
<td>Governance</td>
<td>Governance issues in developing countries. Comparison of mining law internationally.</td>
<td>RT</td>
</tr>
<tr>
<td>4</td>
<td>Tues 24/03</td>
<td>AVIE Group 1</td>
<td>4</td>
<td>VR Group 1 ONLY</td>
<td>Assignment 2 – Ranger Mine - Virtual Reality Interactive Module Session (9am-1pm)</td>
<td>RT</td>
</tr>
<tr>
<td>5</td>
<td>Thurs 26/03</td>
<td>Lecture/Workshop</td>
<td>3</td>
<td>Community</td>
<td>Engagement. Examples of leading practice in community engagement for global mining operations. Principles of community engagement. The role of NGOs.</td>
<td>RT</td>
</tr>
<tr>
<td>6</td>
<td>Tues 31/03</td>
<td>AVIE Group 2</td>
<td>4</td>
<td>VR Group 2 ONLY</td>
<td>Assignment 2 – Ranger Mine - Virtual Reality Interactive Module Session (9am-1pm)</td>
<td>RT</td>
</tr>
<tr>
<td>7</td>
<td>Thurs 02/04</td>
<td>Lecture/Workshop</td>
<td>3</td>
<td>Small Scale</td>
<td>Artisanal Mining. Small scale and artisanal mining – significance and role with respect to large operations. Blood diamonds – blood gold – Kimberley process.</td>
<td>RT</td>
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<tr>
<td>8</td>
<td>Mon 20/04</td>
<td>ASSIGNMENT 1 WRITTEN SUBMISSION DUE (IN ASSIGNMENT BOX &amp; VIA MOODLE)</td>
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<tr>
<td>9</td>
<td>Tues 21/04</td>
<td>AVIE Group 3</td>
<td>4</td>
<td>VR Group 3 ONLY</td>
<td>Assignment 2 – Ranger Mine - Virtual Reality Interactive Module Session (9am-1pm)</td>
<td>RT</td>
</tr>
<tr>
<td>10</td>
<td>Thurs 23/04</td>
<td>Lecture/Workshop</td>
<td>3</td>
<td>Cross Cultural</td>
<td>Issues. Managing in different cultures. Country case study in-class presentations</td>
<td>RT</td>
</tr>
<tr>
<td>11</td>
<td>Tues 28/04</td>
<td>AVIE Group 4</td>
<td>4</td>
<td>VR Group 4 ONLY</td>
<td>Assignment 2 – Ranger Mine - Virtual Reality Interactive Module Session (9am-1pm)</td>
<td>RT</td>
</tr>
<tr>
<td>12</td>
<td>Thurs 03/04</td>
<td>Lecture/Workshop</td>
<td>3</td>
<td>Gender and</td>
<td>Mining. Social impact f mining in women. Gender and the mining industry. Country case study presentations</td>
<td>RT</td>
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<tr>
<td>13</td>
<td>Mon 20/04</td>
<td>ASSIGNMENT 2 WRITTEN SUBMISSION DUE (IN ASSIGNMENT BOX &amp; VIA MOODLE)</td>
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<td>14</td>
<td>Tues 05/05</td>
<td>AVIE Group 5</td>
<td>4</td>
<td>VR Group 5 ONLY</td>
<td>Assignment 2 – Ranger Mine - Virtual Reality Interactive Module Session (9am-1pm)</td>
<td>RT</td>
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<tr>
<td>15</td>
<td>Thurs 07/05</td>
<td>Lecture/Workshop</td>
<td>3</td>
<td>The Resource</td>
<td>Curse. Environmental and economic considerations. The resource curse? Country case study in-class presentations</td>
<td>RT</td>
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<tr>
<td>16</td>
<td>Tues 12/05</td>
<td>AVIE Group 6</td>
<td>4</td>
<td>VR Group 6 ONLY</td>
<td>Assignment 2 – Ranger Mine - Virtual Reality Interactive Module Session (9am-1pm)</td>
<td>RT</td>
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<tr>
<td>17</td>
<td>Thurs 14/05</td>
<td>Lecture/Workshop</td>
<td>3</td>
<td>Climate Change &amp;</td>
<td>Mining. Climate change impacts. Mining operation adaptation. Country case study in-class presentations</td>
<td>RT</td>
</tr>
<tr>
<td>18</td>
<td>Thurs 21/05</td>
<td>Assessment</td>
<td>3</td>
<td>Quiz &amp;</td>
<td>Presentations. MINE4910 Quiz (2 - 4:10pm) Country case study in-class presentations (4:15-5pm)</td>
<td>RT</td>
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<tr>
<td>19</td>
<td>Mon 25/05</td>
<td>ASSIGNMENT 2 WRITTEN SUBMISSION DUE (IN ASSIGNMENT BOX &amp; VIA MOODLE)</td>
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<tr>
<td>20</td>
<td>Tues 26/05</td>
<td>AVIE Groups 1-6</td>
<td>4</td>
<td>AVIE</td>
<td>Rehearsals &amp; Final Class Presentations. ALL VR Groups 1-6 - Assignment 2 – Ranger Mine - presentation rehearsals – (9am-1pm – each group time TBC)</td>
<td>RT</td>
</tr>
<tr>
<td>21</td>
<td>Thurs 28/05</td>
<td>AVIE Groups 1-6</td>
<td>4</td>
<td></td>
<td>ALL VR Groups 1-6 - Assignment 2 – Ranger Mine Final Class Presentations in AVIE (2-6pm – each group time TBC)</td>
<td>RT</td>
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<tr>
<td>22</td>
<td>Thurs 04/06</td>
<td>NO CLASS – MINE4250 Presentations Day 2</td>
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Assessment of Learning Outcomes

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Legal, political and cultural contexts of mining in international locations.</td>
<td>• Assignment 1</td>
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<tr>
<td></td>
<td>• Quiz</td>
</tr>
<tr>
<td>2. The application of sustainable mining practices to mining globally.</td>
<td>• Assignment 1</td>
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<tr>
<td></td>
<td>• Assignment 2</td>
</tr>
<tr>
<td></td>
<td>• Quiz</td>
</tr>
<tr>
<td>3. The global impacts of mining coal, uranium, gold, copper, nickel and other</td>
<td>• Assignment 1</td>
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<tr>
<td>significant commodities.</td>
<td>• Quiz</td>
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<tr>
<td>4. Cross cultural issues and mining.</td>
<td>• Assignment 1</td>
</tr>
<tr>
<td></td>
<td>• Assignment 2</td>
</tr>
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<td></td>
<td>• Quiz</td>
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<tr>
<td>5. Issues affecting mining engineers working for mining companies operating in</td>
<td>• Quiz</td>
</tr>
<tr>
<td>developing countries.</td>
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</tbody>
</table>

Teaching & Learning Methods

1. **Activity-based learning:** This course utilises activity-based learning methods. Activity-based learning is different from the traditional face-to-face lecture format of a lecturer in the front of the class doing most of the talking. The interactive sessions may include a traditional lecture using a PowerPoint presentation or a workshop.

2. **Workshops:** Project research work will be supported with weekly consultative and information sharing sessions. The content of these are aligned with lectures and projects to help students. Although this is an activity-based course, it is a requirement that group project work is conducted within the School.

3. **Group work:** Each project will have a number of focus areas. Members of a group may elect to work on a topic of the project they feel more comfortable with, but should integrate their work into the whole project. This should be reported back at their team meetings. A peer review will have to be submitted by each team indicating the proportion of each individual group member's contribution to the project. Some marks will be taken from the underperforming students and allocated to the other group members. If a student makes no contribution to the project, he/she will receive zero for that project. Ideally each group will consist of 4 to 6 students (maximum 7). The course coordinator, in consultation with the class, will allocate inclusion of students in particular groups.

4. **Effective Communication:** One of the most effective means of learning is to effectively communicate what has been learned. Part of the assessment in this course will be determined by how effectively the results are communicated. There are a number of opportunities for this in the form of presentations and final reports. The process of writing reports, brainstorming within a design team, peer assessment, preparation and presentation of report both in front of an audience and in report form, requires clarity of thinking, defending and revising a design and analysing the risks inherent in a project.

5. **Peer Assessment:** Group performance is a key component of the assessment for this course. The sole measure of performance of team-work is by peer review. Teams that are having problems with unproductive or non-cooperative members are encouraged to seek the intervention of the course coordinator as early as possible. Do not leave these problems to the last minute. Web PA will be used as a peer assessment tool.
## Assessment Summary

<table>
<thead>
<tr>
<th>Assignment 1 – Country Risk Case Study</th>
<th>Wk 6 (Written assignment due Monday April 20, 9am)</th>
<th>40%</th>
<th>Individual written assignment and in-class presentation during semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiz</td>
<td>Wk 10 (May 21)</td>
<td>30%</td>
<td>Individual in-class quiz</td>
</tr>
<tr>
<td>Assignment 2 – Mining in a Sensitive Environment</td>
<td>Wk 11 (Written assignment due Monday May 25, 9am)</td>
<td>30%</td>
<td>Group written assignment (due Mon 25 May) and in-class presentation (Thurs 28 May 2-6pm)</td>
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</tbody>
</table>

Unless advised otherwise, all assignments must be submitted/ uploaded to Moodle no later than 9:00 AM Monday morning, for the date nominated.
STUDYING A UG COURSE IN MINING ENGINEERING AND UNSW

How We Contact You

At times, the School or your lecturers may need to contact you about your course or your enrolment. Your lecturers will use the email function through Moodle or we will contact you on your @student.unsw.edu.au email address.

We understand that you may have an existing email account and would prefer for your UNSW emails to be redirected to your preferred account. Please see these instructions on how to redirect your UNSW emails: https://www.it.unsw.edu.au/students/zmail/redirect_external.html

How You Can Contact Us

We are always ready to assist you with your inquiries. To ensure your question is directed to the correct person, please use the email address below for:

Enrolment or other admin questions regarding your program: mining@unsw.edu.au
Course inquiries: these should be directed to the Course Convenor.

Computing Resources and Internet Access Requirements

UNSW Mining Engineering provides blended learning using the on-line Moodle LMS (learning management system).

It is essential that you have access to a PC or notebook computer. Mobile devices such as smart phones and tablets may compliment learning, but access to a PC or notebook computer is also required. Note that some specialist engineering software is not available for Mac computers.

You can access the School’s computer laboratory in-line with the School laboratory access guidelines and Class bookings.

It is recommended that you have regular internet access to participate in forum discussion and group work. To run Moodle most effectively, you should have:

- broadband connection (256 Kbit/sec or faster)
- Firefox browser
- ability to view streaming video (high or low definition UNSW TV options)

More information about system requirements is available at https://student.unsw.edu.au/moodle-system-requirements

Accessing Course Materials Through Moodle

Course outlines and support materials are uploaded on a Learning Management System (LMS) - Moodle. All enrolled students are automatically included on the Moodle for each course. To access these documents, please visit: https://moodle.telt.unsw.edu.au

Assignment Submissions

The School has developed a guideline to help you when submitting a course assignment. Please take a closer look at all these details on our website: http://www.engineering.unsw.edu.au/mining-engineering/assignment-submission-policy

We encourage you to retain a copy of every assignment submitted for assessment for your own record either in hardcopy or electronic form. On a rare occasion, assignments may be mislaid and we may contact you to re-submit your assignment.
**Group Work – Peer Assessment**

Group work is a key Graduate Attribute in the Mining Engineering program and is integrated into the assessment activities of many courses. This type of assessment will determine if you have satisfactorily attained one or more of the course learning outcomes.

An important factor of your performance and of your group contribution, is included in the results of the peer review system. Your Course Convenor uses these results and other factors in their determination of your result for the group assignment.


**Late Submission of an Assignment**

Full marks for an assignment are only possible when an assignment is received by the due date. In fairness to those students who do meet the assignment due date and time, deductions will apply to submissions made after this time. Details on deductions that are automatically applied to late submissions are available on our webpage: [http://www.engineering.unsw.edu.au/mining-engineering/late-submissions](http://www.engineering.unsw.edu.au/mining-engineering/late-submissions).

We understand that at times you may not be able to submit an assignment on time, and the School will accommodate any fair and reasonable extension. We would recommend you review the UNSW Special Consideration guidelines as soon as possible: [https://student.unsw.edu.au/special-consideration](https://student.unsw.edu.au/special-consideration).

**Course Results**


In some instances your final course result may be withheld and not released on the UNSW planned date. This is indicated by a course grade result of either:

- WD – which usually indicates you have not completed one or more items of assessment or there is an issue with one or more assignment; or
- WC – which indicates you have applied for Special Consideration due to illness or misadventure and the course results have not been finalised.

In either event it would be your responsibility to contact the Course Convener as soon as practicable but no later than five (5) days after release of the course result. If you don’t contact the convener on time, you may be required to re-submit an assignment or re-sit the final exam and may result in you failing the course. You would also have a NC (course not completed) mark on your transcript and would need to re-enroll in the course.

**Special Consideration**

You can apply for special consideration when illness or other circumstances interfere with your assessment performance. Sickness, misadventure or other circumstances beyond your control may:

- Prevent you from completing a course requirement,
- Keep you from attending an assessable activity,
- Stop you submitting assessable work for a course,
- Significantly affect your performance in assessable work, be it a formal end-of-semester examination, a class test, a laboratory test, a seminar presentation or any other form of assessment.

We ask that you please contact the Course Convenor immediately once you have completed the special consideration application, no later than one week from submission. More details on special consideration can be found at: [https://student.unsw.edu.au/special-consideration](https://student.unsw.edu.au/special-consideration).
Students Needing Additional Support

The Student Equity and Disabilities Unit (SEADU) aims to provide all students with support and professional advice when circumstances may prevent students from achieving a successful university education. Take a look at their webpage: http://www.studentequity.unsw.edu.au/.

Academic Honesty and Plagiarism

Your lecturer and the University will expect your submitted assignments are truly your own work. UNSW has very clear guidelines on what plagiarism is and how to avoid it. Plagiarism is using the words or ideas of others and presenting them as your own. Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. The University has adopted an educative approach to plagiarism and has developed a range of resources to support students. All the details on plagiarism, including some useful resources, can be found at https://student.unsw.edu.au/plagiarism.

All Mining Engineering students are required to complete a student declaration for academic integrity which is outlined in the assignment cover sheets. By signing this declaration, you agree that your work is your own original work.

If you need some additional support with your writing skills, please contact the Learning Centre or view some of the resources on their website: http://www.lc.unsw.edu.au/. The Learning Centre is designed to help you improve your academic writing and communication skills. Some students use the Centre services because they are finding their assignments a challenge, others because they want to improve an already successful academic performance.

Report Writing Guide for Mining Engineers


Continual Course Improvement

At the end of each course, all students will have the opportunity to complete a course evaluation form. These anonymous surveys help us understand your views of the course, your lecturers and the course materials. We are continuously improving our courses based on student feedback, and your perspective is valuable.

We also encourage all students to share any feedback they have any time during the course – if you have a concern, please contact us immediately.