

APPLIED SCIENCE AND MANAGEMENT DIVISION
GEOL 202
3 Credit Course
Fall, 2018



COURSE OUTLINE

GEOL202

MINERAL ECONOMICS, MINING LAW, AND SUSTAINABILITY

3 CREDITS

PREPARED BY: Joel Cubley, Program Coordinator

DATE: June 26, 2018

APPROVED BY: Margaret Dumkee, Dean

DATE: June 26, 2018

APPROVED BY ACADEMIC COUNCIL: May 20, 2014



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Mineral Economics, Mining Law and Sustainability

INSTRUCTOR: Cory Redmond, P.Eng.	OFFICE HOURS: by appointment
OFFICE LOCATION: n/a	CLASSROOM: M111
E-MAIL: cory.redmond@alumni.ubc.ca	TIME: M/W 8:30 -10 am (lect.) F 8:30-10:30 am (tut.)
TELEPHONE: (867) 336-8607	DATES: Sept. 5 - Dec. 20, 2018

COURSE DESCRIPTION

This course examines economic, legal, social and environmental factors affecting the mine cycle. It is presented in three sections. The first section, Mineral Economics, examines global metal markets and project economic evaluations. This section includes applications of mineral property valuation and risk management. The second section, Mining Law, introduces Canadian and Yukon legislation impacting the mining industry, including Yukon First Nations land claims agreements and the environmental and socio-economic legislation. The third section, Sustainability, addresses present and future mineral resource use and development in light of social and environmental factors. This includes a review of Yukon Environmental and Socio-Economic Assessment Board and Yukon Water Board reports on select exploration projects and producing mines in the territory.

PREREQUISITES

Mathematics 12 or Yukon College equivalent (MATH 060); English 12 or Yukon College equivalent (ENGL 090). Prior completion of Mining Industry Overview (GEOL112) is strongly recommended.

EQUIVALENCY OR TRANSFERABILITY

In Progress.

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to

- Describe the importance and relevance of accurate economic forecasts and financing plans throughout the mine life cycle.
- Assemble cash flow information and determine the economic feasibility of a mineral project.
- Analyze the financial impact of risks associated with a mineral project and carry out cost-analysis calculations.
- Identify Canadian and Yukon laws and regulations pertaining to mineral resource development; particularly in the areas of Yukon First Nation land claims agreements, taxation, and securities law (e.g. NI43-101).
- Recognize sustainability perspectives related to the mineral industry and describe a project's impact on the economy, the environment and society.

COURSE FORMAT:

This course consists of two 90-minute lectures and one two-hour tutorial period per week. The schedule included in this course outline details the major topics covered and when those topics will be presented throughout the course. Tutorials will be conducted in the classroom setting and will provide an opportunity to apply concepts covered in the lecture.

ASSESSMENTS

Attendance & Participation

Students are strongly encouraged to attend all lectures and tutorial exercises. Tutorial exercises will be conducted during tutorial periods and relevant materials will not be available outside of designated tutorial hours.

Assignments

Weekly tutorial exercises will be due at the start of the following tutorial section. These exercises typically each require 1 hour outside of class time to finish. Students will also be assigned four theory assignments for the lecture segment of the course. Each theory assignment requires ~2 hours to complete.

Tests

There will be a midterm and a final exam for this course. Students must pass the final exam to achieve an overall passing grade.

Due Dates

Lecture assignments are due at the start of lecture on the date assigned by the instructor. Tutorial assignments will be due at the start of the following tutorial period unless otherwise indicated by the instructor. Late assignments will be graded based on the following scheme: a deduction of 10% per day up until a total deduction of 50% is reached, following that, assignments must be submitted prior to the date that the instructor hands back the graded assignment (set by the instructor), unless otherwise indicated by the instructor.

Missed exams will be assigned a grade of 0% unless re-scheduling for a valid reason is approved and determined **in advance** of scheduled exam date. If there are known conflicts with exam scheduling, please see the instructor as soon as possible to discuss an alternative examination date.

EVALUATION

<i>Tests and Assignments</i>	<i>Weight</i>	<i>Dates</i>
Weekly tutorial assignments	40%	Due at the start of each subsequent tutorial section. Twelve assignments @ 3.33 % each.
Midterm exam	10%	Administered during a normal lecture period.
Final exam	30%	During the scheduled final exam period.
Lecture theory assignments	20%	Due one week after assignment handed out. Four assignments @ 5 % each.
Total	100%	

REQUIRED TEXTBOOKS AND MATERIALS

There is no required textbook. Students will be required to draw on resources from the Yukon College library or Yukon Energy, Mines and Resources (EMR) library and from selected information available on the Internet. Proper usage of Internet resources will be demonstrated in tutorial sections.

ACADEMIC AND STUDENT CONDUCT

Information on academic standing and student rights and responsibilities can be found in the current Academic Regulations that are posted on the Student Services/ Admissions & Registration web page.

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when a student submits work for credit that includes the words, ideas, or data of others, without citing the source from which the material is taken. Plagiarism can be the deliberate use of a whole piece of work, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Students may use sources which are public domain or licensed under Creative Commons; however, academic documentation standards must still be followed. Except with explicit permission of the instructor, resubmitting work which has previously received credit is also considered plagiarism.

Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

YUKON FIRST NATIONS CORE COMPETENCY

Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukoncollege.yk.ca/yfnccr.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 456-8629 or lac@yukoncollege.yk.ca.

THE LORENE ROBERTSON WRITING CENTRE

All students are encouraged to make the Writing Centre a regular part of the writing process for coursework. The Lorene Robertson Writing Centre is staffed by helpful writing coaches from across the College and offers one-on-one appointments to students in need of writing support.

The Lorene Robertson Writing Centre can help you:

- Get started on an assignment and focus your ideas
- Outline and plan your assignment
- Write clearly, logically and effectively
- Address specific needs and writing problems
- Revise the first and final drafts of your project

- Gain confidence in your writing

For in-person appointments, the Centre coaching office is located in the Academic Support Centre in room A2302. You can also participate in coaching appointments over the phone or online. see the Academic Support Centre schedule for English and writing support times.

TOPIC OUTLINE

Week	Topic
1	Introduction to mineral economics, mining law and sustainability
Section 1: Mineral Economics	
2	Project management: fundamentals, scheduling, forecasting
2 (cont.)	Metal economics: metal supply and demand, metal prices, inflation, mineral markets, market structure, market organizations, and market examples
3	Metal economics: commodity forecasting metal pricing, volatility, factors affecting supply and demand, units of measure, transportation, exchange rates
4	Economic evaluation of mineral deposits: methods of investment analysis, discounted cash flow, time value of money, net present value (NPV), internal rate of return (IRR), benefit-cost analysis, discounting convention, discount rate selection, sensitivity analysis, inflation
5	Mine Economics: mine plan, scale of operation, smelter contract, net smelter return, mine financing, cost of capital, depreciation, and taxation
6	Applications in the mine cycle: guidelines for mineral property valuation, and mineral economics examples through the mining cycle Risk Management: decision stages, sensitivity, probabilities, Yukon projects
Section 2: Mining Law	
7	Midterm exam
8	Legal framework in Canada: review of Canada's legislation affecting mining (land tenure, aboriginal rights, environment, taxation)
9	Legal framework in Yukon: review of Yukon's legislation affecting mining (First Nations land claims agreements, Placer and Quartz Mining acts, Yukon Environmental & Socio-Economic Assessment Act (YESAA), Yukon Waters Act)
10	Legal procedures: Contracts, confidentiality, privacy, code of ethics, standards for Professional Geoscientists and Technologists
Section 3: Sustainability	
11	Sustainability: development of the sustainability initiative, principles to attain a Social License to Operate (SLO), government sustainability policies, corporate social responsibility (CSR), and community initiatives

12	Sustainable development in Yukon mining: Application, Best Management Practices, review of YESAB and YWB regulatory process; mine closure
13	Sustainable mine development: Exploration through closure; case study of economic, environmental and social considerations for development of mineral deposits
14, 15	Final exam (as scheduled by registrar)