MIN E 295 Introduction to Mining Engineering

Fall 2024 - September 03 to December 09

Course Description:

*3.8 (fi) (either term, 3-0-3/2) Mining concepts and terminology, company operations, stages of mining, unit mining operations, surface and underground mine development and methods, feasibility studies and mine costs, ethics, equity, sustainable development and environmental stewardship, public and worker safety and health considerations including the context of the Alberta Occupational Health and Safety Act

Course synchronous and asynchronous content delivery schedule:

Lecture Sections:

Section	Class Time	Location	Instructor	Office Hours
All Sections	Tuesday, Thursday 12:30-13:50	ETLC E1-008	Clayton Deutsch, PhD, P.Eng cdeutsch@ualberta.ca (780)492-9916	DICE 6-232 as requested
LEC A1	Tuesday, Thursday 12:30-13:50	ETLC E1-008	Erten, Oktay, PhD erten@ualberta.ca	NREF 6-050 as requested

Land Acknowledgment:

The University of Alberta respectfully acknowledges that we are situated on Treaty 6 territory, traditional lands of First Nations and Métis people.

TA Information:

Ms. Rose Aduko (ratampog@ualberta.ca)
Mr. Isaac Barboza (barbozav@ualberta.ca)

Lab Sections:

Section	Day	Time	Location
LAB D21	Tuesday	14:00 - 16:50	

Course Objectives & General Content:

Twelve modules related to Mining Engineering will be delivered. Each module will have an exercise. The lab session will be to help students with the exercise. The lab is in the classroom.

Learning Outcomes:

By the end of this course, students should be able to:

1. Compare different deposit types for different minerals
2. Explain the lifecycle of a mining operation to non-experts
3. Summarize the viability of surface and underground mining methods
4. Discuss the importance and societal relevance of Mining
5. Perform basic cash flow calculations and economic analyses

Marking Scheme:

Activity	(A)Synchronous	Due/Scheduled	Weight
Exercises		As scheduled	40%
Midterm		As scheduled	20%
Final		As scheduled	40%

The Faculty recommended grade point average for a 200 level course is 2.8. Instructors have the leeway to deviate from this average and can assign grades based on their own scheme. All grades are approved by the department chair (or delegate). The office of the Dean has final oversight on all grades.

Term Work

All term work solutions will be posted no later than the last day of classes. All term work will be returned to students by the final day of classes, with the exception of major term work due in the last week of classes. The latter will be returned by the day of the final examination or the last day of the examination period if there is no final examination in the course as per university policy; instructors will make accommodations to return these term work. It is the responsibility of the student to pick up all their term work at the specified time and place. Any unreturned term work, shall be retained and then shredded six months after the deadline for reappraisal and grade appeals. Final examinations will be kept for one year as required by university guidelines and the Government of Alberta's Freedom of Information and Protection of Privacy Act.

Calculator Policy

Only approved non-programmable calculators are permitted in examinations. Any calculator taken into an examination must have a sticker identifying it as an acceptable non-programmable calculator (gold sticker). Students can purchase calculators at the University Bookstore with the stickers already affixed. Calculators purchased elsewhere can be brought to the Student Services where the appropriate sticker will be affixed to the calculator.

Text and References (Mandatory):

Course material will be provided

Lab Information:

Lab Topic	Date

Students will undergo lab specific safety training as a part of this course and are expected to follow appropriate lab safety procedures at all times.

Did you know that the University of Alberta has various low-to-no-cost services to help students succeed? Visit http://www.deanofstudents.ualberta.ca/ for information about the academic, wellness, and various other support services available to U of A students. It's never too early or too late to seek help!

MIN E 295: Introduction to Mining Engineering - Fall 2024

Module	Date	Prof	Topic	Assignment Due
1	Sept 3	CVD	Basic Terminology and Importance of Mining Engineering	
1	Sept 5	CVD	Stages of Mining Operations	
2	Sept 10	CVD	Geology for Mining Engineers	
2	Sept 12	CVD	Formation of Major Ore Deposits	A1
	Sept 17	CVD	Resource Modeling Fundamentals	
3	Sept 19	CVD	Resource Estimation Techniques	A2
3	Sept 24	OE	Introduction to Rock Mechanics and Rock Breakage in Mining	
4	Sept 26	OE	Surface and Underground Mining Equipment	A3
4	Oct 1	OE	Surface Mining Methods	
5	Oct 3	OE	Introduction to Mine Planning	A4
5	Oct 8	CVD	Underground Mining Methods: Metallic Ore Deposits	
6	Oct 10	CVD	Underground Mining Methods: Energy Resources	A5
6	Oct 15	CVD	Materials Handling in Mining	
	Oct 17	OE	Midterm	
7	Oct 22	CVD	Performance Calculations for Mining Equipment	
7	Oct 24	CVD	Mineral Processing 1	A6
8	Oct 29	CVD	Mineral Processing 2	
8	Oct 31	CVD	Mineral Concentration Techniques	A7
9	Nov 5	OE	Froth Flotation	
9	Nov 7	OE	Economics of Mining Projects	A8
10	Nov 19	CVD	Time Value of Money	
10	Nov 21	CVD	Water Management	A9
11	Nov 26	OE	Reclamation and Environmental Aspects	
11	Nov 28	OE	Mine and Equipment Safety	A10
12	Dec 3	CVD	Automation in the Mining Industry	
	Dec 5	CVD	Final Review	

University and faculty policies

Respect and professionalism

The Faculty of Engineering is committed to fostering and protecting an equitable, inclusive, and respectful work and study environment in line with University of Alberta policies and professional engineering industry standards.

The faculty prepares students to uphold industry standards to become a Professional Engineer (P.Eng). Therefore, respect, professionalism, and accountability must be upheld within the Faculty of Engineering and the University of Alberta.

Academic integrity

All students are expected to follow the University of Alberta's Student Code of Behaviour and Student Conduct Policy. The faculty expects an environment free of harassment, discrimination, and bullying. We encourage you to talk to the Office of Safe Disclosure and Human Rights about experiences, questions, or concerns. Additional resources and support for students are attached below.

Engineering students studying in the province of Alberta must also follow the Code of Ethics set by the Association of Professional Engineers and Geoscientists of Alberta (APEGA).

Course outline policies, course requirements, evaluation and grading information can be found in the University Calendar.

Safety during learning activities

In all Faculty of Engineering courses, labs, seminars or other learning activities, safety is of paramount importance. In some cases, laboratory work in a program requires high standards for risk management to keep potential hazards safely under control.

Anyone found to be unable to function safely in the class, lab, seminar or other learning activity may be asked to leave or be removed for their and the safety of other participants and instructors in alignment with the Student Code of Behaviour and Student Conduct Policy. As members, or prospective members, of the engineering profession, it is your responsibility to identify and inform the proper authorities of unsafe work.

Audio and video recording

Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan.

Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

Only those items specifically authorized by the instructor may be brought into the exam facility. Students must not bring any unauthorized electronic device into an examination room, including cell phones or other devices.

Student services and support

Health & Wellness Support

Counselling and Clinical Services

Free, short-term, appointment-based counselling and psychiatric services. Also offers drop-in workshops. Book an initial consultation. Visit uab.ca/CCS to learn more.

Wellness Supports Social Workers

Free one-on-one support for students in the areas of housing, finances, academics, personal wellness, life skill development, family dynamics, system navigation, and any area of life where there is a desire to invite change. Visit uab.ca/wellness to learn more.

Sexual Assault Centre

Free, anonymous, and confidential drop-in counselling. Visit uab.ca/UASAC to learn more.

The Office of Safe Disclosure & Human Rights (OSDHR)

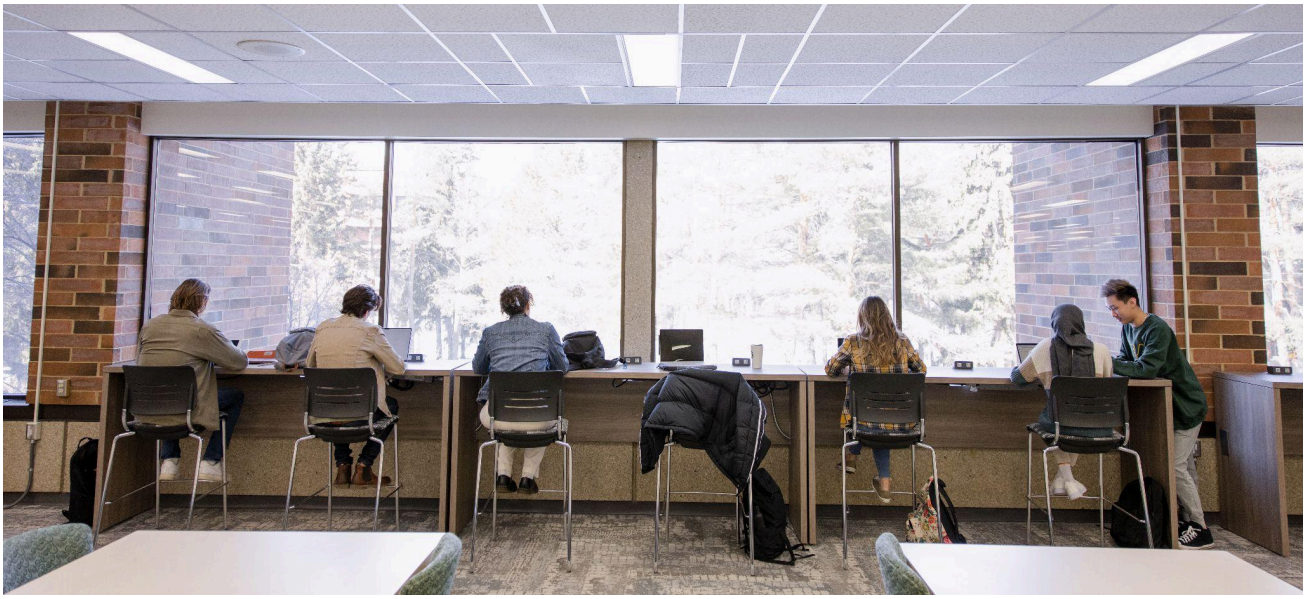
The OSDHR advises confidentially on sensitive issues you may not feel comfortable solving on your own. Contact the OSDHR if you want to get help or to make a report while keeping your privacy. Visit uab.ca/OSDHR to learn more.

HIAR (Helping Individuals at Risk)

If you're worried about someone, contact HIAR, who can help assess risk and connect individuals to support. Learn more at uab.ca/HIAR.

Immediate External Supports

Health Link Alberta: 811
Suicide Crisis Helpline: 988



Academic support

Academic Success Centre
Access to a variety of services to maximize your academic success. Learn more at uab.ca/ASC.

Accessibility Resources
Connects students with disabilities to accommodations. Learn more at uab.ca/Access under accommodations + accessibility.

Decima Robinson Support Centre
Academic support for 100- or 200-level introductory calculus, linear algebra and statistics courses. Visit uab.ca/DSC to learn more.

Engineering Student Success Centre
The Faculty of Engineering provides drop-in tutoring for first-year courses. Visit uab.ca/ESSC to learn more.

Office of the Student Ombuds
Call for complex problems and conflict mediation. Learn more at uab.ca/ombuds.

UNIVERSITY OF ALBERTA

Financial support

Student Service Centre

For awards and other funding support. Learn more at uab.ca/ask.

Campus Food Bank

The Campus Food Bank Society is an independent charity supporting University of Alberta students, faculty, staff, and alumni for up to five years. For additional information visit their website at campusfoodbank.com.