



# Mining Engineering Undergraduate Emphases

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## **Aggregates & Mineral Processing**

Students in this emphasis will obtain a greater understanding in areas such as resource economics, investment community, and business practices within the aggregate industry. Courses will provide a broad, practical foundation in key areas of aggregate practices, mineral processing techniques, and resource management.

## **Geomechanics and Spatial Analytics**

This emphasis is ideal for those who want to develop technical skills and expertise in areas such as geomechanics, spatial analysis, or remote sensing, using techniques that have application in mining and other natural resource-related fields. Courses will allow students to develop skills in diverse areas, including characterizing rock properties, evaluating slope stability, understanding ore deposits, and analyzing spatial data collected using Unmanned Aerial Vehicles (UAVs) and Terrestrial Lidar Scanners (TLS).

## **Mining Operations Management**

This emphasis is ideal for those who wish to manage mine or industrial operations. Students will learn material and acquire skills in effectively utilizing the two critical components of any operation: people and the system. Available topics include how to manage people and organizations, along with engineering courses to simulate a complex system so that management decisions can be compared quantitatively.

## **Mining Safety & Health**

Students in this emphasis will obtain additional background valuable for those wanting to pursue an industry safety and health position. Courses will provide a broad, practical foundation in key areas including safety and health management, risk assessment, and their application within engineering situations.

## **Sustainable Resource Development**

This emphasis will prepare students to navigate the complicated environmental, social, and governance (ESG) dimensions of modern mine development. You will be able to assess key risks and develop mitigations strategies to address ESG topics successfully. It is well suited for those interested in public or government relations jobs within mining companies. It is also suited for those looking to obtain experience in environmental and social assessment mining feasibility studies. Courses will provide background in areas such as water policy, permitting, reclamation, resource economic development, hydrology, and risk management.



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## Program of Study

Fall Semester		Spring Semester	
CHEM 1210 & 1215		5 WRTG 2010	3
MATH 1210 Calculus I		4 MATH 1220 Calculus II	4
LEAP 1501 Social Ethical Eng. - BF		3 LEAP 1500 Eng & Humanities - HFDV	3
MG EN 1050 Comp Skills		2 GEO 1110 Evolving Earth	3
MG EN 3010 Intro to Mining		1 MG EN 4990 Seminar	0.5
MG EN 4990 Seminar		0.5 MG EN 3015 Mine Visits (wk before fall)	1.0
<b>TOTAL HOURS</b>	<b>15.5</b>	<b>TOTAL HOURS</b>	<b>14.5</b>

  

Fall Semester		Spring Semester	
Requirement	Hours	Requirement	Hours
PHYCS 2210		4 PHYCS 2220	4
MET E 1610 Intro to Metallurgy	1.5	MATH 2210 Calculus III	3
MG EN 2400 Surveying		3 CVEEN 2010 Statics or MET E 2300	2
American Institutions - AI		3 GEO 3065 Structural Geology	2
MET E 3070 Statistics		3 GEO 3070 Petrology for Engineers	2
MG EN 4990 Seminar	0.5	Gen Ed FFIR	3
		MG EN 4990 Seminar	0.5
<b>TOTAL HOURS</b>	<b>15.0</b>	<b>TOTAL HOURS</b>	<b>16.0</b>

  

Fall Semester		Spring Semester	
Requirement	Hours	Requirement	Hours
Gen Ed BF		3 ECE 2200 Electrical Eng	1.5
MG EN 5030 Materials Handling	2	MG EN 5010 Underground Methods	3
MATH 2250 ODE	4	MG EN 5150 Mechanics of Materials	3
MG EN 5020 Surface Mining Methods	3	MG EN 5320 Hydraulics	3
CH EN 2300 Thermodynamics	2	MG EN 5350 Mining Safety/Health -1	1
<b>Core 1</b>	<b>3</b>	<b>Core 2*</b>	<b>3</b>
MG EN 4990 Seminar	0.5	MG EN 4990 Seminar	0.5
<b>TOTAL HOURS</b>	<b>17.5</b>	<b>TOTAL HOURS</b>	<b>15.0</b>

  

Fall Semester		Spring Semester	
Requirement	Hours	Requirement	Hours
MG EN 5050 Ventilation	3	Gen Ed FF	3
MG EN 5160 Rock Mechanics	3	MG EN 4080 Permitting & Reclamation	2
MG EN 5340 Mineral Evaluation	3	MG EN 5090 or 5120 Sr Design	3
Gen Ed HF	3	MG EN 5170 Mine Finance	2
<b>Core Elective**</b>	<b>3</b>	MG EN 4990 Seminar	0.5
MG EN 4990 Seminar	0.5	<b>Core Elective**</b>	<b>3</b>
<b>TOTAL HOURS</b>	<b>15.5</b>	<b>TOTAL HOURS</b>	<b>13.5</b>

This is a sample program of study. It is essential to meet with your the academic advisor to make sure your are meeting specific requirements of your selected emphasis. More information is available on line at [mining.utah.edu](http://mining.utah.edu) and by reviewing your degree audit in CIS.