

# B.S. in Mining Engineering

Catalog Year 2022-23

Below is the *advised sequence* of courses for this degree program as of 7/12/22.

Official degree requirements and course prerequisites are found in the University General Catalog; prerequisites are subject to change.

Course Number and Title	Units	Prerequisites/Enrollment Requirements
<b>1<sup>st</sup> Semester</b>		
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
*CHEM 151 Chemical Thinking I or CHEM 161/163	4	Appropriate Math Placement
ENGL 101 or ENGL 107 or 109H First-Year Composition	3	
ENGR 102A/B Introduction to Engineering or ENGR 102	3	<u>ENGR102A</u> : MATH 112; <u>ENGR102B</u> : Concurrently enrolled or completion of MATH 122B or 125; FR & SOPH Status
UNIV 101 Intro to the General Education Experience	1	
Semester Total		<b>16/14</b>
<b>2<sup>nd</sup> Semester</b>		
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
*CHEM 152 Chemical Thinking II or CHEM 162/164 or MSE 110 Solid State Chemistry	4	For Both: CHEM 151 or 141/143 or 161/163
ENGL 102 or 108 First-Year Composition	3	ENGL 101 or 107
*PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or appropriate Math Placement Level
General Education: Exploring Perspectives (Artist)	3	
Semester Total		<b>17</b>
<b>3<sup>rd</sup> Semester</b>		
CE 214 Statics	3	PHYS 141 or 161H; MATH 129
GEOS 251 Physical Geology	4	
MATH 223 Vector Calculus	4	MATH 129 with C or better
MNE 205 Introduction to Mining Engineering	3	Recommend: MATH 120R or higher
MNE 296A Mineral Resource Engineering Topics	1	
MNE 297A Underground Mine Safety ( <b>offered the week prior to start of the fall semester</b> )	1	Previous completion of or concurrent enrollment in MNE 205
General Education: Exploring Perspectives (Humanist)	3	
Semester Total		<b>19</b>
<b>4<sup>th</sup> Semester</b>		
CE 215 Mechanics of Solids	3	CE 214
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
MNE 210 Mineralogy and Petrology for Engineers (Spring Only)	3	CHEM 151 or 161/163 CHEM 152 or 162/164
MNE 204 Introduction to Electric Circuits & Mine Power Systems	3	PHYS 141 or 161H
General Education: Exploring Perspectives (Social Scientist)	3	
Semester Total		<b>15</b>

\*Each of the following foundational science courses satisfies the requirements for General Education: Exploring Perspectives (Natural Scientist): CHEM 151 or 152 or 161 or 162; or PHYS 141 or 161H.

## Mine Operations Track

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
<b>5<sup>th</sup> Semester</b>		
CE 218 Mechanics of Fluids	3	
**MNE 422 Engineering Sustainable Development	3	
MNE 426 Health & Safety in Mining	1	
MNE 427 Geomechanics	4	
MNE 430 Mine Examination and Valuation	3	
MNE 444 Geopositioning for Mining Applications	3	
Semester Total	<b>17</b>	
<b>6<sup>th</sup> Semester</b>		
MNE 396A Technical Trends in Mineral Resource Engineering	1	
MNE 419 Mine Planning Software ( <b>offered the week prior to start of the SPRING semester</b> )	1	
MNE 436 Surface Mine Planning and Design	3	
MNE 438 Underground Mine Planning Design	2	
MNE 476 Mine Ventilation	4	
MNE 402 Probability & Statistical Concepts in Geologic Media or SIE 305 Intro to Engineering Probability & Statistics	3	
Semester Total	<b>14</b>	
<b>7<sup>th</sup> Semester</b>		
MNE 411 Mineral Processing	3	
MNE 415 Rock Excavation	3	
MNE 407 Equipment Operations Technology	3	
MNE 498 Senior Capstone	1	
Technical Elective	3	Consult major advisor for course approval
†General Education: Building Connections	3	
Semester Total	<b>16</b>	
<b>8<sup>th</sup> Semester</b>		
MNE 447 Underground Construction Geomechanics	3	
MNE 498 Senior Capstone	2	
GEOS 304 Structural Geology	4	
Technical Elective	1 - 2	Depends on selection of General Education course, Consult major advisor for course approval
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
Semester Total	<b>15/16</b>	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.

\*\*MNE 422 will fulfill one of the General Education Building Connections courses, provisionally approved for Fall 2022.

# Geomechanics Track

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
<b>5<sup>th</sup> Semester</b>		
CE 218 Mechanics of Fluids	3	
**MNE 422 Engineering Sustainable Development	3	
MNE 426 Health & Safety in Mining	1	
MNE 427 Geomechanics	4	
MNE 430 Mine Examination and Valuation	3	
MNE 444 Geopositioning for Mining Applications	3	
<b>Semester Total</b>	<b>17</b>	
<b>6<sup>th</sup> Semester</b>		
MNE 396A Technical Trends in Mineral Resource Engineering	1	
MNE 419 Mine Planning Software ( <b>offered the week prior to start of the SPRING semester</b> )	1	
MNE 436 Surface Mine Planning and Design	3	
MNE 438 Underground Mine Design	2	
MNE 476 Mine Ventilation	4	
MNE 402 Probability & Statistical Concepts in Geologic Media or SIE 305 Intro to Engineering Probability & Statistics	3	
<b>Semester Total</b>	<b>14</b>	
<b>7<sup>th</sup> Semester</b>		
MNE 407 Equipment Operations Technology	3	
MNE 415 Rock Excavation	3	
MNE 498 Senior Capstone	1	
Technical Elective	4 - 5	Depends on selection of General Education course, Consult major advisor for course approval
†General Education: Building Connections	3	
<b>Semester Total</b>	<b>14/15</b>	
<b>8<sup>th</sup> Semester</b>		
MNE 447 Underground Construction Geomechanics	3	
MNE 498 Senior Capstone	2	
MNE 417 Tailings Storage Facility Design (Planning, Design & Analysis) or CE 343 Soil Mechanics	3	
MNE 417 L Tailings Lab for Mining Engineers or CE 349 Soils Laboratory	1	
GEOS 304 Structural Geology	4	
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
<b>Semester Total</b>	<b>17</b>	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.

\*\*MNE 422 will fulfill one of the General Education Building Connections courses, provisionally approved for Fall 2022.

## Sustainable Resource Development Track

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
<b>5<sup>th</sup> Semester</b>		
CE 218 Mechanics of Fluids	3	
**MNE 422 Engineering Sustainable Development	3	
MNE 426 Health & Safety in Mining	1	
MNE 427 Geomechanics	4	
MNE 430 Mine Examination and Valuation	3	
MNE 444 Geopositioning for Mining Applications	3	
<b>Semester Total</b>	<b>17</b>	
<b>6<sup>th</sup> Semester</b>		
MNE 396A Technical Trends in Mineral Resource Engineering	1	
MNE 419 Mine Planning Software ( <b>offered the week prior to start of the SPRING semester</b> )	1	
MNE 436 Surface Mine Planning and Design	3	
MNE 438 Underground Mine Design	2	
MNE 476 Mine Ventilation	4	
MNE 402 Probability & Statistical Concepts in Geologic Media or SIE 305 Intro to Engineering Probability & Statistics	3	
<b>Semester Total</b>	<b>14</b>	
<b>7<sup>th</sup> Semester</b>		
MNE 411 Mineral Processing	3	
MNE 407 Equipment Operations Technology	3	
MNE 484 Fundamentals of Industrial and Environmental Health	3	
MNE 498 Senior Capstone	1	
Technical Elective	2 - 3	Depends on selection of General Education course, Consult major advisor for course approval
†General Education: Building Connections	3	
<b>Semester Total</b>	<b>15/16</b>	
<b>8<sup>th</sup> Semester</b>		
MNE 498 Senior Capstone	2	
Technical Elective	6	Consult major advisor for course approval
GEOS 304 Structural Geology	4	
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
<b>Semester Total</b>	<b>16</b>	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.

\*\*MNE 422 will fulfill one of the General Education Building Connections courses, provisionally approved for Fall 2022.

## Mineral Processing Track

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
<b>5<sup>th</sup> Semester</b>		
CE 218 Mechanics of Fluids	3	
MNE 411 Mineral Processing	3	
MNE 427 Geomechanics	4	
MNE 426 Health & Safety in Mining	1	
MNE 430 Mine Examination and Valuation	3	
MNE 444 Geopositioning for Mining Applications	3	
<b>Semester Total</b>	<b>17</b>	
<b>6<sup>th</sup> Semester</b>		
MNE 396A Technical Trends in Mineral Resource Engineering	1	
MNE 419 Mine Planning Software ( <b>offered the week prior to start of the SPRING semester</b> )	1	
MNE 436 Surface Mine Planning and Design	3	
MNE 438 Underground Mine Design	2	
MNE 476 Mine Ventilation	4	
MNE 411L Mineral Processing Lab	2	
MNE 402 Probability & Statistical Concepts in Geologic Media or SIE 305 Intro to Engineering Probability & Statistics	3	
<b>Semester Total</b>	<b>16</b>	
<b>7<sup>th</sup> Semester</b>		
MNE 407 Equipment Operations Technology	3	
**MNE 422 Engineering Sustainable Development	3	
MNE 465 Hydrometallurgy	3	
MNE 498 Senior Capstone	1	
†General Education: Building Connections	3	
<b>Semester Total</b>	<b>13</b>	
<b>8<sup>th</sup> Semester</b>		
MNE 439 Surface Chemistry of Flotation	3	
MNE 450 Elements of Solution Mining	3	
MNE 498 Senior Capstone	2	
GEOS 304 Structural Geology	4	
Elective	0 – 1	Depends on selection of General Education course, Consult major advisor for course approval
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
<b>Semester Total</b>	<b>16/17</b>	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.

\*\*MNE 422 will fulfill one of the General Education Building Connections courses, provisionally approved for Fall 2022.