

Sustainable Mineral Resources Minor

Study the interconnected environmental, social, technical, and economic issues surrounding the sustainable and responsible production and use of non-renewable mineral resources. Learn to work with people and value beliefs across disciplines, cultures, and national borders from diverse faculty. Implement critical thinking, effective communication, and data-driven decision making to bridge the gap between humans' ever-increasing demand for minerals and societies' changing priorities toward the environment and communities.

- Minimum of 9 units from one or two tracks
- At least 6 units must be upper division units
- Encouraged, but not required, to take courses from outside student's major and other minors
- Elective tracks are not officially notated on student transcripts/diplomas

All courses are 3 units unless a different number of units is shown in parenthesis.
All courses with * receive Gen Ed credit with the attribute shown in parenthesis.

Customize your track!

Mining & Recycling	Leadership & Communication	Business & Economics	Data Analytics & Automation	Environmental	Health & Safety	Society & Policy
GEOS 251 Physical Geology (4 units)	BNAD 302 Human Side of Organizations	ACCT 250 Survey of Accounting or BNAD 304 Survey of Finance	ESOC 214 Introduction to Data Science	ENVS 305 Pollution Science	EHS 375 Introduction to Environmental & Occupational Health or EHS/MNE/NSC/PCOL 484 Fundamentals of Industrial and Environmental Health	*AIS 220 Contemporary American Indian Issues (Diversity Emphasis; Tier 2 Individuals and Societies) or *GEOG 250 Environment and Society in the Southwest Borderlands (Exploring Perspectives: Social Scientist; Tier 2 Individuals and Societies)
GEOS 346 Mineral & Energy Resources	COMM 117 Culture and Communications	GEOG 305 Economic Geography	*GEOG 222 Working with Numeric, Spatial, and Visual Data Fundamental Geographic Techniques (Exploring Perspectives: Social Scientist)	EHS 426 Topics in Environmental Justice or *ENVS 310 Ecosystem Health and Justice (Diversity Emphasis; Tier 2 Individuals and Societies; Building Connections)	EHS/ENVS 418 Introduction to Human Risk Assessment	AIS/ANTH/ARL/ENVS/RAM/RNR/SWES/WFSC/WSM 441A Natural Resource Management in Native Communities or ANTH/LAS 331 Anthropology and Development
GEOS 446 Economic Mineral Deposits	COMM/PR 201 Introduction to Public Relations	GEOG/EVS 362 Environment and Development	GEOS 280 Programming and Data Analysis in the Earth Sciences	ENVS/GEOS/HWRS 340 Environmental Chemistry	MNE 297A Underground Mine Safety (1 unit)	GEOG/EVS 462 Environmental Law, Geography, and Society or RNR 480 Natural Resources Policy and Law
MNE 205 Introduction to Mining Engineering	COMM 312 Applied Organizational Communications	MNE 205 Introduction to Mining Engineering	RNR/GEOG 403 Application of Geographic Information Systems	GEOS 346 Mineral & Energy Resources	MNE 297B Operation and Maintenance of Heavy Mining Equipment (1 unit)	PA/PPEL 482 Environmental Governance
MNE/GEN 210 Minerology and Petrology for Engineers	COMM 404 Communications and Leadership	MNE 430 Mine Examination and Valuation	ISTA 131 Dealing with Data (4 units)	ENVS 482 Reclamation and Redevelopment of Impacted Lands	MNE 297C Fundamentals of Mine Rescue (1 unit)	*PHIL/PA/PPEL 323 Environmental Ethics (Tier 2 Individuals and Societies; Building Connections)
MNE/MSE 411 Mineral Processing	ENVS 415 Translating Environmental Science	MGMT 202 Ethical Issues in Business or PHIL/LAW 322 Business Ethics	ISTA 321 Data Mining and Discovery	ENVS 201 Water science and the Environment (Tier 2 Natural Sciences)	MNE 423 Historic and Contemporary Role of US Regulatory Agencies (OSHA, MSHA, EPA) or PHP 421 Introduction to Public Health Law and Ethics	RNR/PA 485 The Economics & Social Connections to Natural Resources
MNE 427 Geomechanics (3-4 units)	PR 423 Crisis Communication and Public Relations	SIE/ENGR 265 Engineering Management I	ISTA 322 Data Engineering	*HWRS 201 Water science and the Environment (Tier 2 Natural Sciences)	MNE 424 Miner Health: Fitness-for-Duty, Mitigating Exposures, and Managing Disease Risk	SBE 201 Sustainable Design and Planning
MSE 450 Materials Selection for the Environment		SIE 422 Engineering Decision Making Under Uncertainty		HWRS 350 Principles of Hydrology	MNE 425 Mine Emergencies and Disasters: Prevention, Response, and Recovery	SOC 307 Environmental Sociology
				PA 484 Environmental Management	MNE/GEN 426/426A Health and Safety in Mining	
				SIE 466 Life Cycle Analysis for Sustainable Design & Engineering		

Core Courses

Minimum of 6 units of core coursework | Core courses do not need to be completed before starting electives, but do need to be completed before starting the capstone.

- *MNE/ANTH/GEOS 201 Nonrenewable Resources & World Civilizations (Building Connections; Diversity Emphasis/Tier 2 Natural Sciences)
- *MNE/ENGR 422 Perspectives of Sustainability: Supplying Mineral Resources for Society (Writing now/ Building Connections starting Spring 2027)

- MIN/GEOS/HWRS/MSE 236 Materials, Societies, & Choices (Exploring Perspectives/Diversity & Equity/Quantitative Reasoning)
- MIN/MNE/GEOS/ENVS 226: A Balanced Future: Sustainability & Minerals (Building Connections/Quantitative Reasoning)

Capstone Experience

Minimum 3 upper division units (at least one unit completed in final semester)

Two pathway options:

Option 1: Complete MIN 498: Senior Capstone course

Option 2: Complete a combination of an internship, seminars, and/or research project.

- MIN 396/496: Special Topics in Mining and Mineral Resources Seminar (1 unit each; can be repeated for 3 units total)
- MIN 392/492: Directed Research (1 unit)
- MIN 393/493: Internship (1-2 units)

For Directed Research & Internships

- Requires alignment with interdisciplinary goal of School
- Encouraged to be outside major
- Requires approval by School advisor

