

# 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
- Substitutions allowed for elective courses (must be approved by School advisor)

- 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
<p>GEOS 251 Physical Geology (4 units)</p> <p>GEOS 346: Mineral &amp; Energy Resources</p> <p>GEOS 446 Economic Mineral Deposits</p> <p>MNE 205 Introduction to Mining Engineering</p> <p>MNE/GEN 210 Minerology and Petrology for Engineers</p> <p>MNE/MSE 411 Mineral Processing</p> <p>MNE 427 Geomechanics (3-4 units)</p> <p>MSE 450 Materials Selection for the Environment</p>	<p>BNAD 302 Human Side of Organizations</p> <p>COMM 117 Culture and Communications</p> <p>COMM/PR 201 Introduction to Public Relations</p> <p>COMM 312 Applied Organizational Communications</p> <p>COMM 404 Communications and Leadership</p> <p>ENVS 415 Translating Environmental Science</p> <p>PR 423 Crisis Communication and Public Relations</p>	<p>ACCT 250 Survey of Accounting or BNAD 304 Survey of Finance</p> <p>GEOG 305 Economic Geography</p> <p>GEOG/EVS 362 Environment and Development</p> <p>MNE 205 Introduction to Mining Engineering</p> <p>MNE 430 Mine Examination and Valuation</p> <p>MGMT 202 Ethical Issues in Business or PHIL/LAW 322 Business Ethics</p> <p>SIE/ENGR 265 Engineering Management I</p> <p>SIE 422 Engineering Decision Making Under Uncertainty</p>	<p>ESOC 214 Introduction to Data Science</p> <p>*GEOG 222 Working with Numeric, Spatial, and Visual Data Fundamental Geographic Techniques (Exploring Perspectives: Social Scientist)</p> <p>GEOS 280 Programming and Data Analysis in the Earth Sciences</p> <p>RNR/GEOG 403 Application of Geographic Information Systems</p> <p>ISTA 131 Dealing with Data (4 units)</p> <p>ISTA 321 Data Mining and Discovery</p> <p>ISTA 322 Data Engineering</p>	<p>ENVS 305 Pollution Science</p> <p>EHS 426 Topics in Environmental Justice or *ENVS 310 Ecosystem Health and Justice (Diversity Emphasis; Tier 2 Individuals and Societies; Building Connections)</p> <p>ENVS/GEOS/HWRS 340 Environmental Chemistry</p> <p>GEOS 346: Mineral &amp; Energy Resources</p> <p>ENVS 482 Reclamation and Redevelopment of Impacted Lands</p> <p>*HWRS 201 Water science and the Environment (Tier 2 Natural Sciences)</p> <p>HWRS 350 Principles of Hydrology</p> <p>PA 484 Environmental Management</p> <p>SIE 466 Life Cycle Analysis for Sustainable Design &amp; Engineering</p>	<p>EHS 375 Introduction to Environmental &amp; Occupational Health or EHS/MNE/NSC/PCOL 484 Fundamentals of Industrial and Environmental Health</p> <p>EHS/ENVS 418 Introduction to Human Risk Assessment</p> <p>MNE 297A Underground Mine Safety (1 unit)</p> <p>MNE 297B Operation and Maintenance of Heavy Mining Equipment (1 unit)</p> <p>MNE 297C Fundamentals of Mine Rescue (1 unit)</p> <p>MNE 423 Historic and Contemporary Role of US Regulatory Agencies (OSHA, MSHA, EPA) or PHP 421 Introduction to Public Health Law and Ethics</p> <p>MNE 424 Miner Health: Fitness-for-Duty, Mitigating Exposures, and Managing Disease Risk</p> <p>MNE 425 Mine Emergencies and Disasters: Prevention, Response, and Recovery</p> <p>MNE/GEN 426/426A Health and Safety in Mining</p>	<p>*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)</p> <p>AIS/ANTH/ARL/ENVS/RAM/RNR/WFSC/WSM 441A Natural Resource Management in Native Communities or ANTH/LAS 331 Anthropology and Development</p> <p>SWES/WFSC/WSM 441A Natural Resource Management in Native Communities or ANTH/LAS 331 Anthropology and Development</p> <p>GEOG/EVS 462 Environmental Law, Geography, and Society or RNR 480 Natural Resources Policy and Law</p> <p>PA/PPEL 482 Environmental Governance</p> <p>*PHIL/PA/PPEL 323 Environmental Ethics (Tier 2 Individuals and Societies; Building Connections)</p> <p>RNR/PA 485 The Economics &amp; Social Connections to Natural Resources</p> <p>SBE 201 Sustainable Design and Planning</p> <p>SOC 307 Environmental Sociology</p>
<h3>Core Courses</h3> <p>Minimum of 6 units of core coursework   One core course must be completed before starting electives.</p> <ul style="list-style-type: none"> <li>■ *MNE/ANTH 201 Nonrenewable Resources and World Civilizations (Building Connections; Diversity Emphasis/Tier 2 Natural Sciences)</li> <li>■ *MNE/ENGR 422 Engineering Sustainable Development (Building Connections/Writing starting Fall 2025)</li> <li>■ MIN/GEOS/HWRS/MSE 236 Materials, Societies, &amp; Choices (Exploring Perspectives/Diversity &amp; Equity/Quantitative Reasoning)</li> <li>■ MIN/MNE/GEOS/ENVS 226: A Balanced Future: Sustainability and Minerals (Building Connections/Quantitative Reasoning)</li> </ul>						
<h3>Capstone Experience</h3> <p>Minimum 3 upper division units (at least one unit completed in final semester)</p> <p><b>Two pathway options:</b></p> <p><b>Option 1:</b> Complete MIN 498: Senior Capstone course</p> <p><b>Option 2:</b> Complete a combination of an internship, seminars, and/or research project.</p> <ul style="list-style-type: none"> <li>■ MIN 396/496: Special Topics in Mining and Mineral Resources Seminar (1 unit each; can be repeated for 3 units total)</li> <li>■ MIN 392/492: Directed Research (1 unit)</li> <li>■ MIN 393/493: Internship (1-2 units)</li> </ul>			<h3>For Directed Research &amp; Internships</h3> <ul style="list-style-type: none"> <li>■ Requires alignment with interdisciplinary goal of School</li> <li>■ Encouraged to be outside major</li> <li>■ Requires approval by School advisor</li> </ul>			

