

# Sustainable Mineral Resources Minor

## Customize your track!

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.



THE UNIVERSITY OF ARIZONA  
**School of Mining & Mineral Resources**

### Core Courses

Minimum of 6 units of core coursework

One core course must be completed before starting electives (exceptions may be allowed with School approval)

- \*MNE/ANTH 201 Nonrenewable Resources and World Civilizations (*Diversity Emphasis; Building Connections; Tier 2 Natural Sciences*)
- MNE/ENGR 422 Engineering Sustainable Development – Sr status required
- MIN 236 Materials, Societies, & Choices – Available Spring 2024
- MIN/MNE/GOS/ENVS 226: A Balanced Future: Sustainability and Minerals – Available Fall 2023

Mining & Recycling	Leadership & Communication	Business & Economics	Data Analytics & Automation	Environmental	Health & Safety	Society & Policy
<ul style="list-style-type: none"> <li>• GEOS 251 Physical Geology (4 units)</li> <li>• GEOS 446 Economic Mineral Deposits</li> <li>• MNE 205 Introduction to Mining Engineering</li> <li>• MNE/GEN 210 Minerology and Petrology for Engineers</li> <li>• MNE/MSE 411 Mineral Processing</li> <li>• MNE 427 Geomechanics (3-4 units)</li> <li>• MSE 450 Materials Selection for the Environment</li> <li>• MIN XXX: Recycling and Reclamation</li> </ul>	<ul style="list-style-type: none"> <li>• BNAD 302 Human Side of Organizations</li> <li>• COMM 117 Culture and Communications</li> <li>• COMM/PR 201 Introduction to Public Relations</li> <li>• COMM 312 Applied Organizational Communications</li> <li>• COMM 404 Communications and Leadership</li> <li>• ENVS 415 Translating Environmental Science</li> <li>• PR 423 Crisis Communication and Public Relations</li> </ul>	<ul style="list-style-type: none"> <li>• ACCT 250 Survey of Accounting or BNAD 304 Survey of Finance</li> <li>• GEOG 305 Economic Geography</li> <li>• GEOG/EVS 362 Environment and Development</li> <li>• MNE 205 Introduction to Mining Engineering</li> <li>• MNE 430 Mine Examination and Valuation</li> <li>• MGMT 202 Ethical Issues in Business or PHIL 322 Business Ethics</li> <li>• SIE/ENGR 265 Engineering Management I</li> <li>• SIE 422 Engineering Decision Making Under Uncertainty</li> </ul>	<ul style="list-style-type: none"> <li>• ESOC 214 Introduction to Data Science</li> <li>• *GEOG 222 Working with Numeric, Spatial, and Visual Data Fundamental Geographic Techniques (<i>Exploring perspectives: Social Scientist</i>)</li> <li>• GEOS 280 Programming and Data Analysis in the Earth Sciences</li> <li>• RNR/GEOG 403 Application of Geographic Information Systems</li> <li>• ISTA 131 Dealing with Data (4 units)</li> <li>• ISTA 321 Data Mining and Discovery</li> <li>• ISTA 322 Data Engineering</li> </ul>	<ul style="list-style-type: none"> <li>• ENVS 305 Pollution Science</li> <li>• EHS 426 Topics in Environmental Justice or *ENVS 310 Ecosystem Health and Justice (<i>Diversity Emphasis; Tier 2 Individuals and Societies; Building Connections</i>)</li> <li>• ENVS 340 Environmental Chemistry</li> <li>• ENVS 482 Reclamation and Redevelopment of Impacted Lands</li> <li>• *HWRS 201 Water science and the Environment (<i>Tier 2 Natural Sciences</i>)</li> <li>• HWRS 350 Principles of Hydrology</li> <li>• PA 484 Environmental Management</li> <li>• SIE 466 Life Cycle Analysis for Sustainable Design &amp; Engineering</li> </ul>	<ul style="list-style-type: none"> <li>• EHS 375 Introduction to Environmental &amp; Occupational Health or EHS/CE/CPH/MNE/NSC/N_SC/ OSH/PCOL/PHL 484 Fundamentals of Industrial and Environmental Health</li> <li>• EHS/CPH/ENVS/SWES 418 Introduction to Human Risk Assessment</li> <li>• MNE 297A Underground Mine Safety (1 unit)</li> <li>• MNE 297B Operation and Maintenance of Heavy Mining Equipment (1 unit)</li> <li>• MNE 297C Fundamentals of Mine Rescue (1 unit)</li> <li>• MNE 423 Historic and Contemporary Role of US Regulatory Agencies (OSHA, MSHA, EPA) or PHP 421 Introduction to Public Health Law and Ethics</li> <li>• MNE 424 Miner Health: Fitness-for-Duty, Mitigating, Exposures, and Managing Disease Risk</li> <li>• MNE 425 Mine Emergencies and Disasters: Prevention, Response, and Recovery</li> <li>• MNE/GEN 426 Health and Safety in Mining</li> </ul>	<ul style="list-style-type: none"> <li>• *AIS 220 Contemporary American Indian Issues (<i>Diversity Emphasis; Tier 2 Individuals and Societies</i>) or *GEOG 250 Environment and Society in the Southwest Borderlands (<i>Exploring Perspectives: Social Scientist; Tier 2 Individuals and Societies</i>)</li> <li>• AIS/ANTH/ARL/ENVS/RAM/RNR/SWES/WFSC/WSM 441A Natural Resource Management in Native Communities or ANTH/LAS 331 Anthropology and Development</li> <li>• GEOG/EVS 362/462 Environmental Law, Geography, and Society or RNR 480 Natural Resources Policy and Law</li> <li>• PA/PPEL 482 Environmental Governance</li> <li>• *PHIL/PA/PPEL 323 Environmental Ethics (<i>Tier 2 Individuals and Societies; Building Connections</i>)</li> <li>• RNR/PA 485 The Economics &amp; Social Connections to Natural Resources</li> <li>• SBE 201 Sustainable Design and Planning</li> <li>• SOC 307 Environmental Sociology</li> </ul>

- Minimum of 9 units from one or two tracks
- At least 6 units must be upper division
- Substitutions allowed for elective courses (must be approved by School advisor, program coordinator, or program manager)
- 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.

### Capstone Experience

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

Two pathways

- 1 Complete MIN 4XX: Capstone Course
- 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)
    - Requires alignment with interdisciplinary goal of School
    - Must be outside major
    - Approval from School advisor, program coordinator, or program manager