Finding, developing, and extracting mineral resources goes smoothest when everyone on the team works together, communicates effectively, and understands the whole value chain – not just one piece of it. But all too often, mining engineers, geologists, and metallurgists work in separate siloes. Breaking down these siloes takes either decades of experience or specialized, interdisciplinary, industry-focused training not offered at conventional university programs.

Recognizing this critical gap in education, the Lowell Institute for Mineral Resources collaborated with Newmont Mining and Freeport-McMoRan Inc. to develop a series of 3 short courses designed to break down barriers to communication and improve collaboration among geologists, mining engineers, and metallurgists in the mining industry. Each course introduces the fundamentals and role of one profession to the other two, from the perspective of top geologists, engineers, and metallurgists in the mining industry.

**PART 1**
**Geological Inputs to Integrated Planning**
- The role of geology and geologists in exploration, mine operations, and business planning
- Mineralogical inputs to processing and extraction plans
- Geological controls on geotechnical factors
- Collection, interpretation, and analysis of geological data
- Geological and block modeling and interface with mine planning

*Developed in collaboration with: Newmont Mining*

**PART 2**
**Mine Engineering Inputs to Integrated Planning**
- The role of mining engineering and engineers in project valuation, development, and operation
- Economic, geomechanical, geological, metallurgical, and infrastructure factors in project design and operation
- Parameter selection and pit and phase design
- Production scheduling, long-, medium-, and short-range planning, and reconciliation
- Resource estimation and reporting

*Developed in collaboration with: Freeport-McMoRan Inc.*

**PART 3**
**Metallurgical Inputs to Integrated Planning**
- The role of metallurgy and metallurgists in mine design, operations, and planning
- Mineralogical, economic, and chemical factors in recovery
- Parameters in processing and extraction system design, operation, and planning
- Methods of predicting, testing, and monitoring performance

*In development – to get involved contact Isabel Barton at Fay@email.arizona.edu*
FEATURED INSTRUCTORS

Jaeheon Lee is a professor in the UA Department of Mining and Geological Engineering and former project metallurgist and process engineer for Newmont Mining and Barrick Gold.

Rick Preece retired from 38 years as a mineral deposit geologist as Global Practice Leader, Geology for BHP Billiton Base Metals, with a portfolio that includes having managed numerous geological, metallurgical, and resource estimation studies.

Brad Ross managed Kennecott’s Bingham Canyon mine during and after the Manefay slope failure and is now co-director of the Lowell Institute and a Professor of Practice in the UA’s Department of Mining and Geological Engineering.

Eric Seedorff spent 15 years as an exploration geologists for copper, gold, and molybdenum. He retired as the Vice President of Mineral Resources for BHP Copper to become the UA’s Lowell Chair in Economic Geology.

Ralph Stegen is the vice president for near-mine exploration at Freeport McMoRan Inc., and former chief geologist at Morenci and Tyrone.

The Freeport-McMoRan Mine Planning Group brings together expertise in geology, geotechnics, and mining engineering to design development and operation plans for mines around the world.

SIGN UP!

Schedule
Timing is approximate with actual dates fixed roughly 60 days prior to each course.

Part 1: Fall (October/November)
Part 2: Spring (March/April)
Part 3: Spring (April/May)

How To Register
Contact Rocio Brambila at brambila@email.arizona.edu to request a registration form.

Fees
Free to students and $850/person for industry (subject to change).

Questions?
For course content and collaboration contact Isabel Barton at Fay1@email.arizona.edu
For logistics and registration contact Rocio Brambila at brambila@email.arizona.edu.

ABOUT THE LOWELL INSTITUTE FOR MINERAL RESOURCES

The University of Arizona’s Lowell Institute for Mineral Resources is the mining industry’s hub for interdisciplinary education and research. We’re dedicated to addressing key risks across the full lifecycle of mineral resources – from exploration to reclamation.

Based in a top-25 research institution, our unique stakeholder-driven model has its roots in a mining industry partnership that dates back to 1885. Every day we work with dozens of mining companies and other stakeholders worldwide and foster collaboration across 26 academic disciplines in 10 colleges. These collaborations help break down barriers between industry, government, research universities and communities. Together, we’re tackling the industry’s toughest challenges and preparing the next-generation workforce.

Since 2009, the Lowell Institute has provided professional development training for more than 1,500 mining industry professionals across 80 companies and 27 countries.

ABOUT THE UNIVERSITY OF ARIZONA

Established in 1885, the University of Arizona, the state’s super land-grant university, produces graduates who are real-world ready through its 100% Engagement initiative. Recognized as a global leader, the UA is also a leader in research, bringing more than $606million in research investment each year, and ranking 21st among all public universities. The UA is advancing the frontiers of interdisciplinary scholarship and entrepreneurial partnerships and is a member of the Association of American Universities, the 62 leading public and private research universities.

Mining has always been at the core of the UA mission, ever since its founding as the Arizona School of Mines in 1885. Our location in Southern Arizona is perfect for studying the intersections of geology, mining, social use, hydrology, and much more.