

# The Graduate School

<https://www.mines.edu/graduate-studies/>

## Unique Programs

Because of its special focus, Colorado School of Mines has unique programs in many fields. For example, Mines is the only institution in the world that offers doctoral programs in all five of the major earth science disciplines: Geology and Geological Engineering, Geophysics, Geochemistry, Mining Engineering, and Petroleum Engineering. It also has one of the few Metallurgical and Materials Engineering programs in the country that still focuses on the complete materials cycle from mineral processing to finished advanced materials.

In addition to the traditional programs defining the institutional focus, Mines is pioneering both undergraduate and graduate interdisciplinary programs. Mines understands that solutions to the complex problems involving global processes and quality of life issues require cooperation among scientists, engineers, economists, and the humanities.

Mines offers interdisciplinary graduate programs in areas such as Additive Manufacturing, Advanced Energy Systems, Data Science, Geochemistry, GIS & Geoinformatics, Humanitarian Engineering & Science, Hydrologic Science & Engineering, Materials Science, Nuclear Science & Engineering, Operations Research with Engineering, Quantitative Biosciences & Engineering, Quantum Engineering, Robotics, Space Resources, and Underground Construction & Tunneling Engineering. These programs make interdisciplinary connections between traditional fields of engineering, physical science and social science, emphasizing a broad exposure to fundamental principles while cross-linking information from traditional disciplines to create the insight needed for breakthroughs in the solution of modern problems. Additional interdisciplinary degree programs may be created by Mines' faculty as need arises.

Lastly, Mines offers a variety of non-thesis Professional Master's degrees to meet the career needs of working professionals in Mines' focus areas.

## Graduate Degrees Offered

Mines offers graduate certificate, professional master's, master of science (MS), master of engineering (ME) and doctor of philosophy (PhD) degrees in the disciplines listed in the chart.

In addition to master's and PhD degrees, departments and programs can also offer graduate and post-baccalaureate certificates. Graduate and post-baccalaureate certificates are designed to have selective focus, short time to completion, and consist of course work only.

## Accreditation

Mines is accredited at the graduate level, through the doctoral degree, by the following:

The Higher Learning Commission (HLC) of the North Central Association

230 South LaSalle Street, Suite 7-500  
Chicago, Illinois 60604-1413  
telephone (312) 263-0456

Degree Programs	Prof.	M.S.	M.E.	Ph.D.	Cert.
Additive Manufacturing		x			X
Advanced Energy Systems		x		x	

Analytical Geochemistry	x				x
Antennas & Radar Technology					x
Applied Chemistry					x
Applied Mathematics and Statistics	x		x		
Applied Physics	x				
Business Analytics					x
Carbon Capture, Utilization and Storage					x
Chemical Engineering	x		x		
Chemical Engineering Processes in Energy Transitions					x
Chemistry	x				
Civil & Environmental Engineering	x			x	
Computer Science	x			x	
Computer Science Professional					x
CyberSecurity for Cyber Physical Systems					x
Data Science	x				
Data Science - Computer Science					x
Data Science - Foundations					x
Data Science - Petroleum Data Analytics					x
Data Science for Signals and Systems					x
Data Science - Statistical Learning					x
Earth Resources Data Science					x
Earth Resources Science and Engineering	x		x		
Economic Geology					x
Electrical Engineering	x			x	
Energy Geophysics					x
Engineering & Technology Management	x				
Environmental Geochemistry	x				
Environmental Engineering Science	x			x	
Environmental Modeling					x
Exploration Methods					x
Finite Element Analysis Professional					x
Geochemistry	x			x	
Geological Engineering	x		x		x
Geology	x				x
Geophysical Engineering	x				x
Geophysics	x				x
GIS & Geoinformatics	x				
GIS & Geoinformatics: Geospatial Information Technology					x
GIS & Geoinformatics: GIS for Environmental Studies					x
GIS & Geoinformatics: GIS for Geohazards Evaluation					x
GIS & Geoinformatics: GIS for Natural Resources Assessment					x

Humanitarian Engineering & Science	x		x
Hydrology	x	x	
Materials Science	x	x	
Mechanical Engineering	x	x	
Metallurgical & Materials Engineering	x	x	x
Mineral & Energy Economics	x	x	
Mineral Exploration	x		
Mining Engineering	x	x	
Mining Industry Management	x		
Natural Resources and Energy Policy	x		x
Nuclear Science and Engineering	x	x	x
Operations Research with Engineering	x	x	
Optics for Engineering			x
Petroleum Engineering	x	x	x
Physics		x	
Product Management			x
Quantitative Biosciences and Engineering	x	x	
Quantum Engineering	x		x
Resource Commodity Analytics			x
RF and Microwave Engineering			x
Robotics	x	x	x
Smart Grid, Power Electronics & Electrical Power Systems	x		x
Space Resources	x	x	x
STEM Education	x		
Tailings Engineering			x
Underground Construction and Tunnel Engineering	x	x	x