

NORTHWESTERN UNIVERSITY GRADUATE PROGRAM IN UNDERGROUND SCIENCE AND ENGINEERING

2026 - 2027

Note: The recommended program includes 12 courses, in addition to the CAE Seminar series.
The minimum number of courses for an MS is 12 (9 required + 3 electives).

Track		1 st Quarter/Fall	2 nd Quarter/Winter	3 rd Quarter/Spring
Recommended:		Advanced Soil Mechanics (450-1)	Energy Geostuctures and Geosystems (353)	Reservoir Geomechanics (453)
4 Courses/Quarter plus CAE seminar		Mechanics of Earthquake Ruptures (395)	Reinforced concrete (325)	Plates and Shells (410)
		Individual Design/Research Project (499)	Individual Design/Research Project (590)	Individual Design/Research Project (590)
		4 th Course from Tracks below	4 th Course from Tracks below	4 th Course from Tracks below
Civil and Architectural Engineering (CAE) seminars in Fall (515-1), Winter (515-2) and Spring (515-3) quarters				
Tracks Choose 1 Course/Quarter	Structures	Inelastic Analysis of Structures (422) Matrix Analysis of Structures (423) Mechanics of Continua (417) Finite Element Method in Mechanics (327)	Properties of Concrete (321) Theory of Elasticity (415) Stability of Structures (424)	Structural Steel Design (323) High Performance Architectural Design (386) Quasibrittle Fracture and Scaling (430) Structural Analysis Dynamics (320 / ME 363)
	Others	Uncertainty Analysis (306) Environmental Transport Processes (440)	Infrastructure Systems Analysis (483) Advanced Finite Element Methods 1 (426-1)	Any other relevant course discussed and confirmed with Prof. Rotta Loria
Note: required courses/projects are in bold face				
¹ number in parenthesis are Civ-Env courses unless noted otherwise				