APEGA The Association of Professional Engineers and Geoscientists of Alberta

GEOLOGY & ENVIRONMENTAL GEOSCIENCE
COURSE EQUIVALENTS
2020 Syllabus Edition (Updated September 2026)

University of Alberta		*University of Calgary*		*Mount Royal University*	
20-GFUND-1a	**Elementary Calculus I**				
MATH 117	Honours Calculus I	MATH 249	Introductory Calculus	MATH 1200	Calculus for Scientists I
OR		OR			
MATH 144	Calculus for the Physical Sciences I	MATH 265	University Calculus I		
		OR			
		MATH 275	Calculus for Engineers and Scientists		
20-GFUND-1b	**Elementary Calculus II**				
MATH 118	Honours Calculus II	MATH 267	University Calculus II	MATH 2200	Calculus for Scientists II
OR		OR			
MATH 146	Calculus for the Physical Sciences II	MATH 277	Multivariate Calculus for Engs and Scientists		
20-GFUND-2a	**General Physics I**				
PHYS 124	Particles and Waves	PHYS 211	Mechanics	PHYS 1201	Classical Physics I
OR		OR			
PHYS 144	Newtonian Mechanics and Relativity	PHYS 221	Mechanics		
OR					
PHYS 181	Relativity, Electricity, Magnetism				
20-GFUND-2b	**General Physics II**				
PHYS 126	Fluids, Fields, Radiation	PHYS 223	Intro to Electromagnetism & Thermal Physics	PHYS 1202	Classical Physics II
OR					
PHYS 146	Fluids and Waves				
20-GFUND-3a	**General Chemistry I**				
CHEM 101	Intro University Chemistry I	CHEM 201or202	General Chemistry: Structure & Bonding	CHEM 1201	General Chemistry - Structure and Bonding
		OR			
		CHEM 211	Foundations of Chem: Structure & Bonding		
20-GFUND-3b	**General Chemistry II**				
CHEM 102	Intro University Chemistry I	CHEM 203or204	General Chemistry: Change & Equilibrium	CHEM 1202	General Chemistry: Introduction to Quantitative Chemistry
		OR			
		CHEM 213	Foundations of Chem: Change & Equilibrium		
20-GFUND-4	**Differential Equations & Transform Methods**				
MATH 201	Differential Equations	MATH 375	Differential Equations for Engineers & Scientists	MATH 2307	Differential Equations I
20-GFUND-5	**Linear Algebra and Vector Analysis**				
MATH 125	Linear Algebra I	MATH 211	Linear Methods I	MATH 1203	Linear Algebra for Scientists and Engineers
OR					
MATH 127	Honours Linear Algebra I				
20-GFUND-6	**Computing Science**				
CMPUT 101	Introduction to Computing	CPSC 217	Introduction to Computing Science I	COMP 2001	Computer - Based Problem Solving for the Sciences

OR		OR			
CMPUT 201	Practical Programming Methology	DATA 211	Programming with Data		
	University of Alberta		***University of Calgary***		***Mount Royal University***
20-GFUND-7	**Thermodynamics**				
PHYS 261	Physics of Energy	ENGG 311	Engineering Thermodynamics	PHYS 3601	Thermodynamics
OR		OR		OR	
CHEM 371	Energetics of Chemical Reactions	CHEM 371	Physical Chemistry: Thermodynamics	CHEM 3601	Thermodynamics
20-GFUND-8	**Biology**				
BIOL 107	Introduction to Cell Biology	BIOL 205	Organization and Diversity of Life	BIOL 1202	Introduction to Cell Biology
OR		OR			
BIOL 108	Introduction to Biological Diversity	BIOL 211	Biomolecules & Cellular Systems	BIOL 1205	The Organization and Diversity of Life
20-GFUND-9	**Physical Chemistry**				
CHEM 373	Physical Properties & Dynamics of Chem Systs	CHEM 373	Physical Chemistry: Quantum Chemistry	CHEM 2601	Introduction to Physical Chemistry
20-GFUND-10	**Organic Chemistry**				
CHEM 261	Organic Chemistry I	CHEM 351	Organic Chemistry I	CHEM 2101	Organic Chemistry I
		OR		OR	
		CHEM 353	Organic Chemistry II	CHEM 2102	Organic Chemistry II
				OR	
				CHEM 2157	Industrial Organic Chemistry
20-GFUND-11	**Inorganic Chemistry**				
CHEM 241	Introduction to Inorganic Chemistry	CHEM 431	Inorganic: Group Elements	CHEM 2401	Inorganic Chemistry
OR		OR			
CHEM 333	Inorganic Materials Chemistry	CHEM 433	Inorganic: Transition Metals		
20-GFUND-12	**Statistics**				
STAT 151	Introduction to Applied Statistics I	STAT 205	Introduction to Statistical Inquiry	MATH 2235	Statistics with Applications in Geology
OR		OR			(can only be used once, for Gfund-12 or GLGY-26)
AUSTA 215 - Statistical Methods for the Natural Sciences		STAT 213	Introduction to Statistics I		
		OR			
		STAT 321	Introduction to Probability		
		OR			
		STAT 327	Statistics for Physical & Environmental Sciences		
20-GLGY-1	**Mineralogy & Crystallography**				
EAS 224	Mineralogy I	GLGY 313	Mineralogy	GEOL 2103	Minerals and Rocks
		OR			
		ERTH 310	Minerals & Rocks		
20-GLGY-2	**Principles of Stratigraphy and Sedimentation**				
EAS 222	Stratigraphy and Sedimentation	GLGY 381	Sedimentary Rocks & Processes	GEOL 2109	Stratigraphy and Sedimentation
		OR			
		ERTH 320	Earth Surface Processes & Environments		
20-GLGY-3	**Igneous Petrology**				
EAS 331	Igneous Petrology	GLGY 333	Igneous & Metamorphic Rocks & Processes	GEOL 3103	Igneous Petrology
		OR			
		ERTH 410	Igneous Petrology		
20-GLGY-4	**Sedimentary Petrology**				
EAS 336	Sedimentary Systems	ERTH 420	Sedimentary Petrology	GEOL 3109	Sedimentary Petrology
20-GLGY-5	**Metamorphic Petrology**				
EAS 332	Metamorphic Petrology	ERTH 415	Metamorphic Petrology	GEOL 3111	Metamorphic Petrology

20-GLGY-6	**Structural Geology**				
EAS 233	Geologic Structures	GLGY 343 OR ERTH 340	3D Geologic Structures & Methods Rock Deformation & Structure	GEOL 2105	Structural Geology

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20-GLGY-7	**General Geochemistry**				
EAS 320	Geochemistry I	GLGY 323 OR ERTH 315	Geochemical Processes Fundamentals of Geochemistry	GEOL 3113	Geochemistry
20-GLGY-8	**Global Geophysics**				
GEOPH 210	Structure, Dynamics & Evolution of Earth	GOPH 351 OR ERTH 360	Introduction to Geophysics Global Geophysics & Planetary Geoscience	No Course Equivalent	
20-GLGY-9	**Geomorphology**				
EAS 225	Earth Surface Processes and Landforms	GLGY 353	Surficial Systems	GEOL 3107	Geomorphology
20-GLGY-10	**Glacial and Quaternary Geology**				
EAS 458	Cold Regions Geoscience	No Course Equivalent		No Course Equivalent	
20-GLGY-11	**Hydrogeology**				
EAS 323	Introduction to Hydrogeology	GLGY 401 OR ERTH 330	Physical Hydrogeology Water & Earth	GEOL 4105	Hydrogeology
20-GLGY-12	**Paleontology**				
EAS 230 OR PALEO 414	Introduction to Invertebrate Paleontology Paleontology	GLGY 493 OR ERTH 307	Evolution of Earth through Life and Time Geological History of Life	GEOL 2107	Paleontology
20-GLGY-13	**Petroleum & Natural Gas**				
EAS 364	Basin Resources and Subsurface Methods	GLGY 581 OR ERTH 520	Advanced Petroleum Geology Sequence Stratigraphy & Basin Analysis	GEOL 4109	Petroleum Geology
20-GLGY-14	**Economic Geology**				
No Course Equivalent		No Course Equivalent		No Course Equivalent	
20-GLGY-15	**Metallic Mineral Deposits**				
EAS 368	Ore Deposits Geology	GLGY 527 OR ERTH 510	Ore Deposits Ore Deposits	GEOL 4111	Ore Deposits and Economic Geology
20-GLGY-16	**Stratigraphy of Western North America**				
No Course Equivalent		No Course Equivalent		GEOL 4107 OR GEOL 4607	Geological History of Western Canada Geology of the Canadian Cordillera
20-GLGY-17	**Geotectonics & Global Geology**				
No Course Equivalent		GLGY 555	Global Tectonics	GEOL 4601	Plate Tectonic Regimes

20-GLGY-18	**Exploration Geophysics**				
GEOPH 223	Environmental Geophysics	GOPH 355	Exploration & Environmental Geophysics	GEOL 3115	Exploration Geophysics
OR		OR			
GEOPH 224	Geophysics ExplorationTechniques	ERTH 460	Applied Geophysics & Interpretation		
20-GLGY-19	**Optical and Advanced Mineralogy**				
EAS 232	Mineralogy II	GLGY 523	Advanced Mineralogy	GEOL 2111	Crystallography and Optical Mineralogy
		OR			
		ERTH 515	Applied Mineralogy		
20-GLGY-20	**Advanced Sedimentology**				
EAS 465	Sedimentology	GLGY 463	Siliciclastic Sedimentology	GEOL 4101	Advanced Topics in Sedimentary Geology
		OR		OR	
		GLGY 483	Carbonate Sedimentology	GEOL 4515	Sedimentary Basin Analysis
		OR			
		ERTH 425	Sedimentary Facies & Models		
20-GLGY-21	**Advanced Igneous and/or Metamorphic Petrology**				
EAS 466	Petrogenesis	ERTH 610	Advanced Igneous Petrology	GEOL 4103	Advanced Topics in Igneous and Metamorphic Geology
		OR			
		ERTH 615	Advanced Metamorphic Petrology		
20-GLGY-22	**Advanced Geochemistry**				
EAS 468	Geochemical Processes	GLGY 602	Advanced Aqueous Geochemistry	No Course Equivalent	
		OR			
		ERTH 435	Aqueous Geochemical Processes		
20-GLGY-23	**Principles of Geotechnics**				
CIV E 381	Soil Mechanics	GLGY 571	Engineering Geology	No Course Equivalent	
OR		OR			
MIN E 323	Rock Mechanics	ERTH 545	Geohazards & Geotechnical Analysis		
20-GLGY-24	**Advanced Paleontology**				
PALEO 513	Advanced Paleontology	GLGY 587	Invertebrate Paleobiology	No Course Equivalent	
OR		OR			
PALEO 418	Paleobiology of the Vertebrates I	ERTH 450	Paleoclimate, Extinction, Recovery		
OR					
PALEO 419	Paleobiology of the Vertebrates II				
20-GLGY-25	**Advanced Structural Geology**				
EAS 421	Structural Geology & Tectonics	GLGY 445	Structural Geology	No Course Equivalent	
		OR			
		GLGY 541	Advanced Structural Geology		
		OR			
		ERTH 440	Tectonics & Structural Geology		
20-GLGY-26	**Geostatistics**				
No Course Equivalent		GLGY 597	Geostatistics	MATH 2235	Statistics with Applications in Geology
		OR			(can only be used once, for Gfund-12 or GLGY-26)
		ERTH 365	Computers in Earth & Environmental Science		
20-GLGY-27	**Advanced Hydrogeology**				
EAS 425	Contaminant Hydrology	GLGY 505	Contaminant Hydrogeology	No Course Equivalent	
		OR			
		ERTH 430	Physical Hydrology & Hydrogeology		
		OR			
		ERTH 530	Groundwater & Surface Water Quality		
		OR			
		ERTH 630	Groundwater Flow & Reactive Transport Modeling		
20-GLGY-28	**Reservoir Geology**				
EAS 364	Basin Resources & Subsurface Methods	GLGY 698	Reservoir Characterization	No Course Equivalent	

		OR		
		ERTH 655	Unconventional Reservoir Characterization & Eval	
20-GLGY-29	**Advanced Ore Deposits**			
No Course Equivalent		No Course Equivalent		No Course Equivalent
20-GLGY-30	**Photogeology and Remote Sensing**			
EAS 221	Introduction to GIS & Remote Sensing	GEOG 380	Geospatial Communication	GEOG 1105 Introduction to Mapping, GIS and Remote Sensing
OR		OR		OR
EAS 451	Digital Remote Sensing	GEOG 484	Remote Sensing Essentials	GEOG 3555 Remote Sensing
		OR		
		GEOG 584	Advanced Remote Sensing	
20-GLGY-31	**Precambrian Geology**			
EAS 432	Precambrian Geology	GLGY 535	Early Earth Evolution	No Course Equivalent
		OR		
		ERTH 550	Evolution of Earth	

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