

**Course Requirements and Registration Priorities  
School of Mining and Geosciences, Spring 2023**

| #                         | Abbr     | Title                                 | Cr(US) | Cr(ECTS) | PreRequisite  | CoRequisite | AntiRequisite | 1st priority registration                               | 2nd priority registration  | 3rd priority registration | 4th priority registration |
|---------------------------|----------|---------------------------------------|--------|----------|---|-------------|---------------|---|--|---------------------------|---------------------------|
| <b>SMG</b>                |          |                                       |        |          |   |             |               |   |  |                           |                           |
| <b>Mining Engineering</b> |          |                                       |        |          |   |             |               |   |  |                           |                           |
| 1                         | MINE 201 | Mineral Processing                    | 3      | 6        |   |             |               | 2 year UG SMG Mining Engineering, 4 year UG SMG Geology | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG |                           |                           |
| 2                         | MINE 306 | Underground Mining Systems and Design | 3      | 6        | MINE 302 Geomechanics (5878) (D and above) AND MINE 405 Mine Ventilation (5879) (D and above)   |             |               | 3 year UG SMG Mining Engineering                        | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG |                           |                           |
| 3                         | MINE 307 | Surface Mining System and Design      | 3      | 6        | MINE 302 Geomechanics (5878) (D and above)  |             |               | 3 year UG SMG Mining Engineering                        | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG |                           |                           |
| 4                         | MINE 308 | Mine Planning                         | 3      | 6        |   |             |               | 3 year UG SMG Mining Engineering                        | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG |                           |                           |
| 5                         | MINE 309 | Sustainability and Mining Environment | 3      | 6        | SMG 100 Introduction to Natural Resources Extraction (4773) (D and above)   |             |               | 3 year UG SMG Mining Engineering, 4 year UG SMG Geology | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG |                           |                           |
| 6                         | MINE 310 | Rock Breakage                         | 3      | 6        | MINE 302 Geomechanics (5878) (D and above)  |             |               | 3 year UG SMG Mining Engineering                        | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG |                           |                           |
| 7                         | MINE 403 | Mine Risk Management                  | 3      | 6        |   |             |               | 4 year UG SMG Mining Engineering                        | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG |                           |                           |
| 8                         | MINE 480 | Mine Design Project                   | 3      | 6        | MINE 307 Surface Mining System and Design (6150) (C- and above) OR MINE 306 Underground Mining Systems and Design (6151) (C- and above) |             |               | 4 year UG SMG Mining Engineering                        |  |                           |                           |
| 9                         | MINE 490 | Research project II                   | 3      | 6        | MINE 489 Research Project I (6419) (P)  |             |               | 4 year UG SMG Mining Engineering                        |  |                           |                           |
| 10                        | MINE 507 | Rock Excavation Methods               | 3      | 6        |   |             |               | 1 year Gr SMG Mining Engineering                        |  |                           |                           |
| 11                        | MINE 508 | Advanced Rock Mechanics               | 3      | 6        |   |             |               | 1 year Gr SMG Mining Engineering                        |  |                           |                           |

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| 12                           | MINE 509   | Advanced Surface Mine Design     | 3  | 6  |  |  |  | 1 year Gr SMG Mining Engineering   |  |  |  |
| 13                           | MINE 510   | Advanced Underground Mine Design | 3  | 6  |  |  |  | 1 year Gr SMG Mining Engineering   |  |  |  |
| 14                           | MINE 607   | Geometallurgy                    | 3  | 6  |  |  |  | 2 year Gr SMG Mining Engineering   | Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics |  |  |
| 15                           | MINE 691   | Thesis II                        | 15 | 30 | MINE 690 Thesis I (4531) (P)   |  |  | 2 year Gr SMG Mining Engineering   |  |  |  |
| 16                           | MINE 701   | Advanced Mine Geomechanics       | 4  | 8  |  |  |  | 1 year PhD SMG Mining Engineering  |  |  |  |
| 17                           | MINE 702   | Current Research Literature      | 4  | 8  |  |  |  | 1 year PhD SMG Mining Engineering  |  |  |  |
| 18                           | MINE 703   | Advanced Mining Systems          | 4  | 8  |  |  |  | 1 year PhD SMG Mining Engineering  | Chemical Engineering, Civil Engineering, Computer Science, Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology   |  |  |
| 19                           | MINE 803   | Advanced Geometallurgy           | 4  | 8  |  |  |  | 1 year PhD SMG Mining Engineering  |  |  |  |
| 20                           | MINE 890-0 | Thesis Research                  | 0  | 0  |  |  |  | Mining Engineering, Petroleum Engineering                                |  |  |  |
| <b>Petroleum Engineering</b> |            |                                  |    |    |  |  |  |  |  |  |  |
| 21                           | PETE 202   | Transport Phenomena              | 3  | 6  | ENG 200 Engineering Mathematics III (Differential Equations and Linear Algebra) (5009) (C- and above) OR CHEM 101 General Chemistry I (113) (C- and above) OR CHEM 101L General Chemistry I lab (179) (C- and above) |  |  | 2 year UG SMG Petroleum Engineering, 3 year UG SMG Petroleum Engineering |  |  |  |

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| 22 | PETE 203 | Drilling Engineering with Laboratories       | 4 | 8 | PETE 201 Fluid Mechanics and Thermodynamics (5120) (C- and above)  |  |  | 2 year UG SMG Petroleum Engineering, 3 year UG SMG Petroleum Engineering |                       |  |  |
| 23 | PETE 204 | Reservoir Rock and Fluid Properties with Lab | 4 | 8 | PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above)  |  |  | 2 year UG SMG Petroleum Engineering, 4 year UG SMG Geology               |                       |  |  |
| 24 | PETE 305 | Well Test Analysis                           | 3 | 6 | PETE 302 Reservoir Engineering I with Laboratory works (5955) (C- and above)   |  |  | 3 year UG SMG Petroleum Engineering                                      | Petroleum Engineering |  |  |
| 25 | PETE 306 | Reservoir Engineering II                     | 3 | 6 | PETE 204 Reservoir Rock and Fluid Properties with Lab (5487) (C- and above) OR PETE 302 Reservoir Engineering I with Laboratory works (5955) (C- and above)  |  |  | 3 year UG SMG Petroleum Engineering                                      | Petroleum Engineering |  |  |
| 26 | PETE 307 | Production Engineering                       | 3 | 6 | PETE 201 Fluid Mechanics and Thermodynamics (5120) (C- and above) OR PETE 302 Reservoir Engineering I with Laboratory works (5955) (C- and above)  |  |  | 3 year UG SMG Petroleum Engineering                                      | Petroleum Engineering |  |  |
| 27 | PETE 311 | Reservoir Simulation                         | 3 | 6 | PETE 301 Numerical Methods for Petroleum Engineers (5881) (C- and above) AND PETE 302 Reservoir Engineering I with Laboratory works (5955) (C- and above) AND PETE 304 Well Completion and Stimulation (5883) (C- and above) |  |  | 3 year UG SMG Petroleum Engineering, 4 year UG SMG Petroleum Engineering |                       |  |  |
| 28 | PETE 404 | Petroleum Geomechanics                       | 3 | 6 | GEOL 101 Fundamentals of Geology (4774) (C- and above) OR GEOL 102 Fundamentals of Geology (4772) (C- and above)   |  |  | 4 year UG SMG Petroleum Engineering                                      |                       |  |  |
| 29 | PETE 407 | Capstone Design Project II                   | 3 | 6 | PETE 400 Capstone Design Project I (6424) (P)  |  |  | 4 year UG SMG Petroleum Engineering                                      |                       |  |  |
| 30 | PETE 421 | Advanced Technologies in Drilling            | 3 | 6 | PETE 203 Drilling Engineering with Laboratories (5486) (C- and above) AND PETE 304 Well Completion and Stimulation (5883) (C- and above)   |  |  | 4 year UG SMG Petroleum Engineering                                      |                       |  |  |
| 31 | PETE 506 | Advanced Reservoir Simulation                | 3 | 6 |  |  |  | Petroleum Engineering  |                       |  |  |
| 32 | PETE 507 | Advanced Reservoir Engineering               | 3 | 6 |  |  |  | Petroleum Engineering  |                       |  |  |
| 33 | PETE 508 | Advanced Production Engineering              | 3 | 6 |  |  |  | Petroleum Engineering  |                       |  |  |

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| 34                                      | PETE 606 | Advanced Enhanced Oil Recovery | 3  | 6  |   |  |  | Petroleum Engineering   |   |  |  |
| 35                                      | PETE 620 | Thesis II                      | 12 | 24 |   |  |  | Petroleum Engineering   |   |  |  |
| 36                                      | PETE 702 | Current Research Literature    | 4  | 8  |   |  |  | Petroleum Engineering   |   |  |  |
| 37                                      | PETE 703 | Advanced Reservoir Engineering | 4  | 8  |   |  |  | Mining Engineering, Petroleum Engineering   | Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology |  |  |
| 38                                      | PETE 801 | Advanced Reservoir Simulation  | 4  | 8  |   |  |  | Mining Engineering, Petroleum Engineering   | Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology |  |  |
| 39                                      | PETE 803 | Advanced Enhanced Oil Recovery | 4  | 8  |   |  |  | Mining Engineering, Petroleum Engineering   | Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology |  |  |
| 40                                      | PETE 890 | Thesis Research                | 0  | 0  |   |  |  | Petroleum Engineering   |   |  |  |
| <b>School of Mining and Geosciences</b> |          |                                |    |    |   |  |  |   |   |  |  |
| 41                                      | GEOL 101 | Fundamentals of Geology        | 3  | 6  |   |  |  | 4 year UG SEDS, 4 year UG SEDS (pending graduation), 4 year UG SMG, 4 year UG SSH, 4 year UG SSH (pending graduation) |   |  |  |
| 42                                      | GEOL 204 | Sedimentology and stratigraphy | 3  | 6  | GEOL 101 Fundamentals of Geology (4774) (D and above) OR GEOL 102 Fundamentals of Geology (4772) (D and above) AND GEOL 202 Geologic Maps and Cross-Sections (5123) (D and above) |  |  | 2 year UG SMG Geology   |   |  |  |
| 43                                      | GEOL 205 | Paleontology                   | 3  | 6  | GEOL 101 Fundamentals of Geology (4774) (D and above) OR GEOL 102 Fundamentals of Geology (4772) (D and above)  |  |  | 2 year UG SMG Geology   |   |  |  |

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| 44 | GEOL 301 | Igneous and metamorphic petrology | 3 | 6 | GEOL 101 Fundamentals of Geology (4774) (D and above)<br>OR GEOL 102 Fundamentals of Geology (4772) (D and above)   |  |  | 2 year UG SMG Geology, 3 year UG SMG Geology, 3 year UG SMG Mining Engineering | 1 year UG SEDS, 2 year UG SEDS, 3 year UG SEDS, 4 year UG SEDS, 4 year UG SEDS (pending graduation), 5 year UG SEDS, 5 year UG SEDS (pending graduation), 6 year UG SEDS |  |
| 45 | GEOL 303 | Structural Geology and Tectonics  | 3 | 6 | (GEOL 101 Fundamentals of Geology (4774) (D and above)<br>OR GEOL 102 Fundamentals of Geology (4772) (D and above))<br>AND GEOL 202 Geologic Maps and Cross-Sections (5123) (D and above) |  |  | 3 year UG SMG Geology  | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG   | 1 year UG SEDS, 1 year UG SSH, 2 year UG SEDS, 2 year UG SSH, 3 year UG SEDS, 3 year UG SSH, 4 year UG SEDS, 4 year UG SEDS (pending graduation), 4 year UG SSH, 4 year UG SSH (pending graduation), 5 year UG SEDS, 5 year UG SEDS (pending graduation), 5 year UG SSH, 5 year UG SSH (pending graduation), 6 year UG SEDS, 6 year UG SSH, 6 year UG SSH (pending graduation) |
| 46 | GEOL 304 | Geophysics                        | 3 | 6 | GEOL 204 Sedimentology and stratigraphy (5475) (D and above)  |  |  | 3 year UG SMG Geology  | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG   |  |
| 47 | GEOL 307 | Geographic Information Systems    | 3 | 6 |   |  |  | 3 year UG SMG Geology  |  |  |
| 48 | GEOL 309 | Hydrogeology                      | 3 | 6 |   |  |  | 3 year UG SMG Geology, 4 year UG SMG Mining Engineering                        |  |  |
| 49 | GEOL 403 | Geostatistics                     | 3 | 6 | MATH 161 Calculus I (118) (C- and above)  |  |  | 4 year UG SMG Geology  |  | 4 year UG SEDS, 4 year UG SSH  |
| 50 | GEOL 405 | Research Project II               | 3 | 6 | GEOL 404 Research Project I (6423) (C- and above)   |  |  | 4 year UG SMG Geology  |  |  |

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| 51 | GEOL 407 | Exploration Geology & Geophysics | 3 | 6 | GEOL 101 Fundamentals of Geology (4774) (C- and above)    |  |  | 4 year UG SMG Geology                                   | 1 year UG SEDS, 1 year UG SSH, 2 year UG SEDS, 2 year UG SSH, 3 year UG SEDS, 3 year UG SSH, 4 year UG SMG Mining Engineering, 4 year UG SMG Petroleum Engineering, 5 year UG SEDS, 5 year UG SEDS (pending graduation), 5 year UG SSH, 5 year UG SSH (pending graduation), 6 year UG SEDS, 6 year UG SSH, 6 year UG SSH (pending graduation) | 4 year UG SEDS, 4 year UG SEDS (pending graduation), 4 year UG SSH, 4 year UG SSH (pending graduation) |  |
| 52 | SMG 400  | Engineering Economics            | 3 | 6 | SMG 200/ECON 220 Resource Economics (6197) (C- and above) |  |  | 4 year UG SMG Geology, 4 year UG SMG Mining Engineering | Geology, Mining Engineering, Petroleum Engineering, Undeclared SMG  | SEDS, SSH  |  |