

# GEOSCIENCE, MPSM

**Requirements for Students Matriculating in or before Academic Year 2022-2023.** Learn more about Graduate College Academic Regulation 7.0 (<http://catalog.okstate.edu/graduate-college/#70>).

**Total Hours:** 36

| Code                                     | Title  | Hours    |
|--|--|----------|
| <b>Core Courses</b>                      |  |          |
| Select 9 hours from the following:       |  | 9        |
| GEOL 5213                                | Seismic Interpretation   |          |
| GEOL 5383                                | Sequence Stratigraphy  |          |
| GEOL 5223                                | Advanced Methods in Structural Geology                                       |          |
| GEOL 5333                                | Applied Geostatistics  |          |
| GEOL 5463                                | Physical Hydrogeology  |          |
| GEOL 5103                                | Introduction to Geophysical Exploration                                      |          |
| GEOL 5113                                | Seismic Interpretation   |          |
| MBA 5300                                 | Current Business Topics (Ethics)   |          |
| MBA 5400                                 | Business Practicum (Project Management)                                      |          |
| MBA 5500                                 | Interdisciplinary Inquiry in Business Administration (Descriptive Analytics) |          |
| <b>Hours Subtotal</b>                    |  | <b>9</b> |
| <b>Option Requirements</b>               |  |          |
| Select 12 hours from appropriate option: |  | 12       |
| <i>Geophysics</i>                        |  |          |
| GEOL 5103                                | Introduction to Geophysical Exploration                                      |          |
| GEOL 5113                                | Seismic Interpretation   |          |
| GEOL 5543                                | Introduction to Exploration Seismology                                       |          |
| GEOL 5990                                | Advanced Studies in Geology  |          |
| GEOL 6103                                | Gravity and Magnetic Methods   |          |
| GEOL 6303                                | Electrical and Electromagnetic Methods                                       |          |
| <i>Petroleum Geology</i>                 |  |          |
| GEOL 5023                                | Petroleum Geology  |          |
| GEOL 5253                                | Petrology and Diagenesis of Clastic Rocks                                    |          |
| GEOL 5133                                | Structural Styles in Oil and Gas Exploration                                 |          |
| GEOL 5283                                | Subsurface Geologic Methods  |          |
| GEOL 5353                                | Advanced Well Log Analysis   |          |
| GEOL 5363                                | Carbonate Depositional Systems   |          |
| GEOL 5393                                | Stratigraphy of the Midcontinent   |          |
| GEOL 5603                                | Basin Evolution  |          |
| GEOL 6503                                | Rock Fractures   |          |
| GEOL 6133                                | Unconventional Petroleum Reservoirs  |          |
| GEOL 6283                                | Geology of Shales  |          |
| GEOL 6373                                | Advanced Carbonate Petrology and Geochemistry                                |          |
| GEOL 6363                                | Carbonate Reservoir Characterization   |          |
| GEOL 6386                                | Sequence Stratigraphy of Shales  |          |
| <i>Hydrogeology</i>                      |  |          |
| GEOL 5453                                | Groundwater Modeling   |          |
| GEOL 5463                                | Physical Hydrogeology  |          |
| GEOL 5483                                | Petroleum Water Management   |          |
| GEOL 6553                                | Contaminant Hydrogeology   |          |

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|---|---|-----------|
| CIVE 5033   | GIS Applications for Water Resources                        |           |
| CIVE 5833   | Introduction to Environmental Modeling                      |           |
| CIVE 5913   | Groundwater Hydrology                                       |           |
| CIVE 6843   | Stochastic Methods in Hydrology                             |           |
| SOIL 5223   | Soil Chemical Processes and Impact on Environmental Quality |           |
| SOIL 5483   | Soil Bioremediation and Sustainability                      |           |
| SOIL 5583   | Soil Physics Measurement Techniques                         |           |
| <b>Hours Subtotal</b>   |   | <b>12</b> |
| <b>Clusters</b>   |   |           |
| Select any four courses - courses within a cluster can lead to a graduate certification. <sup>1</sup> |   | 12        |
| <i>Big Data (online and certification available through CS)</i>                                       |   |           |
| STAT 5093   | Statistical Computing                                       |           |
| CS 5783   | Machine Learning  |           |
| CS 5433   | Big Data Management   |           |
| CS 5683   | Big Data Analytics  |           |
| <i>Business Administration (online and certification through Spears)</i>                              |   |           |
| MGMT 5113   | Individual and Organizational Behavior                      |           |
| ACCT 5183   | MBA Financial Reporting                                     |           |
| FIN 5013  | Business Finance  |           |
| ECON 5113   | Managerial Economics  |           |
| MKTG 5133   | Marketing Management  |           |
| <i>Business Data Mining (online and certification through Spears)</i>                                 |   |           |
| BAN 5733  | Descriptive Business Analytics                              |           |
| BAN 5743  | Predictive Business Analytics                               |           |
| MSIS 5633   | Predictive Analytics Technologies                           |           |
| MSIS 5643   | Advanced Database Management                                |           |
| <i>Marketing Analytics (online and certification through Spears)</i>                                  |   |           |
| MKTG 5733   | Introduction to Marketing Analytics                         |           |
| MKTG 5743   | Advanced Marketing Analytics                                |           |
| MSIS 5633   | Predictive Analytics Technologies                           |           |
| MSIS 5303   | Prescriptive Analytics                                      |           |
| <i>Advanced Computing</i>   |   |           |
| CS 5033   | Parallel Algorithms and Programming                         |           |
| CS 5123   | Cloud Computing and Distributed Systems                     |           |
| CS 5513   | Numerical Computation                                       |           |
| STAT 5053   | Time Series Analysis  |           |
| STAT 5063   | Statistical Machine Learning with R                         |           |
| CS 5793   | Artificial Intell II  |           |
| ECEN 5733   | Neural Networks   |           |
| <i>Energy Management (courses available online and in Tulsa)</i>                                      |   |           |
| FIN 5003  | Introduction to Energy Business                             |           |
| FIN 5363  | Energy Finance  |           |
| PETE 5363   | Petroleum Economics and Investments                         |           |
| MSIS 5633   | Predictive Analytics Technologies                           |           |
| <i>Environmental Engineering and Management</i>   |   |           |
| CIVE 5713   | Soil Mechanics  |           |
| CIVE 5813   | Environmental Laboratory Analysis                           |           |
| CIVE 4123   | The Legal & Regulatory Environment of Civil Engineering     |           |
| SOIL 4893   | Environmental Soil Chemistry                                |           |
| <i>Reservoir Management Cluster</i>   |   |           |

|   |   |           |
|---|---|-----------|
| PETE 4303   | Petroleum Rocks and Fluids  |           |
| PETE 4313   | Drilling and Well Completions   |           |
| PETE 4333   | Production Engineering  |           |
| PETE 4343   | Reservoir Engineering and Well Testing                                    |           |
| PETE 5303   | Petroleum Geomechanics  |           |
| PETE 5513   | Directional Drilling  |           |
| <i>GEO-Int</i>  |   |           |
| GEOG 5263   | Geospatial Applications for Unmanned Aerial Systems                       |           |
| GEOG 5303   | Geographic Analysis I   |           |
| GEOG 5343   | Advanced Geographic Information Systems: Resource Management Applications |           |
| GEOL 5990   | Advanced Studies in Geology   |           |
| <b>Hours Subtotal</b>   |   | <b>12</b> |
| <b>Thesis</b>   |   |           |
| Three hours of Capstone Project Course (Professional Internship with a research report) |   | 3         |
| <b>Hours Subtotal</b>   |   | <b>3</b>  |
| <b>Total Hours</b>  |   | <b>36</b> |

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Most of the courses have prerequisites that can be waived with instructor's consent.

## Retention Requirements

- The student will complete a Progress Report every semester in consultation with the mentor clearly highlighting previous achievements and immediate expectations, indicating how well the student is progressing towards degree completion.
- Enrollment in minimum of one course per semester or an approved leave of absence.

## Graduation Requirements

- Completion of a capstone project to the satisfaction of the student's committee along with a written report
- No pending Incomplete ("I") grades in the coursework contributing towards the professional master's degree. A student can take more than 36 credit hours of course work. However, only 36 credit hours of coursework will be counted towards degree completion.

## Graduate College Master's Program Requirements

Learn more about Graduate College 2022-2023 Master's Degree Program Requirements (<http://catalog.okstate.edu/graduate-college/>). Check the General Graduate College academic regulations for minimal GPA, language proficiency and other general requirements.