The Harold Hamm School of Geology and Geological Engineering offers programs of study leading to the Doctor of Philosophy in geological engineering. GE research emphasis is currently in the following areas:

- Enhanced oil recovery
- Hydrology and water quality
- Remote sensing
- Renewable energy
- Natural hazards

**Goal 1:** Graduates will have a depth of knowledge in geological engineering accompanied by a breadth of knowledge in related areas to achieve their specific goals and objectives.

**Goal 2:** Graduates will be proficient researchers, i.e. they will have the skills required to formulate, assess and document a hypothesis.

**Goal 3:** Graduates will be well prepared for advanced professional practice, for teaching, and for careers in research and creative activity in engineering or a related field.

**Admission Requirements**

1. A B.S. degree in geological engineering from an ABET accredited program with a GPA of 3.3 or higher or a M.S. degree in geological engineering with a GPA of 3.0.
2. Satisfy the Graduate School’s English Language Proficiency requirements as published in the Graduate Catalog; applicants being considered for a graduate teaching assistantship must score 26/30 on the TOEFL speaking subtest.
3. In addition to meeting the general provisions in the UND graduate catalog and the minimum requirements in items 1-2 above, candidates are assessed using a holistic process that considers student’s record of publications, GRE test scores (for students who are applying with a B.S. engineering degree from a non-ABET accredited program), transcripts of previous college work, relevant research and work experience, letters of recommendation, research interests, and English language skills.
4. A student holding a non-engineering degree or who does not meet the minimum requirements in items 1-2 above may apply to the M.S. degree program in geological engineering.
5. A student admitted to the M.S. program in geological engineering but meeting the minimum requirements in items 1-2 above, may after one calendar year, and upon the recommendation of his/her advisory committee, request to by-pass the master’s degree and work directly toward the Ph.D. degree.

Initial decisions for admission and financial aid are made about March 1 for the fall semester and about September 1 for the spring semester.

**Degree Requirements**

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the School of Graduate Studies as well as particular requirements set forth by the Harold Hamm School of Geology and Geological Engineering. The following requirements are in addition to the UND graduate school general requirements for the Ph.D.:

1. Completion of 90 semester credits beyond the baccalaureate degree, including acceptable master’s degree work and credits granted for the dissertation and research leading to the dissertation.
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. A minimum of 39 credit hours of coursework are required. The coursework shall include a minimum of 27 credit
hours of geological engineering courses (or relevant courses with the consent of advisor) selected from the approved list of courses.

4. Successful completion of a qualifying examination, taken no earlier than the end of the first semester in residence.

5. Successful completion of an oral comprehensive exam when at least 45 post baccalaureate credits have been completed.

6. Students must present to their advisory committee an oral report describing their research progress each semester.

7. A candidate for the degree must complete the original basic research investigation as documented in the research proposal. Each candidate will complete the research investigation to the satisfaction of the research adviser and the advisory committee and will prepare a written dissertation covering the research. The research must be presented and defended successfully at a final examination.

8. Submit at least two peer-reviewed conference papers (as first author) and at least two articles to peer-reviewed journal outlets (as first author), with consent of advisor.

Faculty and Areas of Expertise

- I-Hsuan Ho, Ph.D., Slope Stability, Geo-hazards, Energy Foundations, Sustainable Geomaterials
- Taufique Mahmood, Ph.D., Hydrology, Water Quality, Climate Change, Remote Sensing
- Dongmei Wang, Ph.D., Enhanced Oil Recovery, Petrophysics
- Nels Forsman, Ph.D., Sedimentary Petrology, Diagenesis, Planetary Geology
- Philip Gerla, Ph.D., Hydrogeology, Environmental Geology, Wetlands, Geographic Information Systems
- William D. Gosnold, Ph.D., Heat Flow, Tectonics, Global Change, Isostasy, Structural Geology
- Joseph Hartman, Ph.D., Invertebrate Paleontology, Stratigraphy
- Richard LeFever, Ph.D., Sedimentology, Stratigraphy, Basin Analysis
- Ronald K. Matheney, Ph.D., Hydrogeochemistry, Isotope Geochemistry, Paleoclimatology
- Stephan Nordeng, Ph.D., Petroleum geology, organic geochemistry
- Dexter Perkins, Ph.D., Metamorphic Petrology, Mineralogy
- Jaakko Putkonen, Ph.D., Geomorphology, Surface Processes, Quaternary Geology

Contact Information

Dr. Ronald K. Matheney, Graduate Program Director
College of Engineering and Mines
Harold Hamm School of Geology & Geological Engineering
Leonard Hall Room 207
81 Cornell Street, Stop 8358
Grand Forks, ND 58202-8358

P: 701-777-4569
F: 701-777-4449
http://www.geology.und.edu
ronald.matheney@engr.und.edu