

North Carolina Geological Licensure: Academic Guidelines

Geology license applicants are required to have completed at least 30 semester hours of geoscience or geoscience-related courses that include 24 hours of advanced courses and that lead to a degree in geosciences as described below.

(A) Significant course content (required) “leading to a degree” in geology/geosciences

Lower level courses

- physical/general geology
- geologic time - e.g. historical geology or Earth history

Advanced courses

- mineralogy
- igneous petrology
- metamorphic petrology
- sedimentology/stratigraphy
- structural geology

Most or all of the above will have associated, required labs. Some schools, such as North Carolina State University (NCSU), have a course in Intro to Mineralogy & Petrology (MEA 410) that includes significant content in mineralogy, igneous petrology, and metamorphic petrology, which would fulfill the licensing academic requirement for those three categories. Other universities would require separate semester courses in each or might combine them in a different way. Although most physical geology courses introduce mineral identification and igneous/metamorphic/sedimentary petrology, the fundamental content would fulfill only the general geology (lower level) requirement.

Thus, if a student followed the course sequence for the NCSU Geology (BS) degree, the following courses (and their prerequisites) would be required for licensure:

Lower level courses

Geology I: Physical	MEA 101
Geology I lab	MEA 110
Geology II: Historical	MEA 202
Geology II lab	MEA 211

Advanced courses

Intro to Mineralogy & Petrology	MEA 410
Sedimentary Petrol. & Stratigraphy	MEA 450
Structural Geology	MEA 451

The lower level courses total 8 hours and the advanced courses total 12, so s/he would need to take additional advanced courses that total at least 12 more semester hours that, all told, would lead to a geology or geosciences degree. A good example would be to add courses at the advanced level in geological mapping, geohydrology, and optical mineralogy. An equally good example would be to take engineering geology, soils, and geomorphology. Still another would be to add geohydrology, geochemistry, and water chemistry/water quality.

(B) Minimum semester hours of 30 total, including 24 advanced (junior-senior level) geosciences or related courses.

In addition to those courses needed to fulfill the required content (described in Section A, above), the balance of the 30-semester-hour requirement may come from an array of geoscience and geoscience-

related courses such as those in the list that follows. Those courses fall into upper and lower level categories based on the depth of course material that is usually indicated by course numbers (100's-200's or 1000's-2000's for lower level and \geq 300's-400's or 3000's-4000's for advanced courses):

Geosciences

- Earth Materials
- Engineering Geology
- Environmental Geology
- Geology mapping course (Field Camp)
- Geochemistry
- Geohydrology/Groundwater hydrology
- Geomorphology
- Geophysics
- Invertebrate paleontology
- Optical mineralogy
- Seismology
- Stratigraphy
- Advanced petrology, advanced structural geology, etc.

Related courses

- Analytical chemistry
- Geographic Information Systems
- Remote Sensing
- Soils
- Water chemistry/quality

The above does not include all possible combinations nor all courses but should be considered guidelines. Likewise, the key phrases from the law (North Carolina General Statutes 89E-9(2), emphasis added) are:

- have a degree with a major in geology, engineering geology or geological engineering or related geologic science;
- or have completed 30 semester hours or the equivalent in geological science courses ***leading to a major in geology***, of which at least 24 hours of the equivalent were upper level undergraduate courses or graduate courses

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