

**1800.3910 EDUCATION AND EXPERIENCE.**

Subpart 1. **Written examination requirement.** An applicant for licensure within a geoscience discipline shall pass written examinations as provided in part 1800.3920.

An applicant for licensure under part 1800.0800, item I, whose original licensure in the other state was granted after August 4, 1997, shall satisfy the Minnesota licensing requirements that were in effect at the time of the applicant's original licensure in the other state. An applicant for licensure under part 1800.0800, item I, whose original licensure in the other state was granted before August 4, 1997, shall satisfy the Minnesota licensing requirements that were in effect on August 4, 1997.

The written Fundamentals of Geology (FG) examination or Fundamentals of Soil Science (FSS) examination must be waived by the board if:

A. the applicant has a doctorate degree in the geoscience discipline in which the applicant is seeking licensure or equivalent doctorate degree as approved by the board; and

B. the applicant meets the educational requirements in subpart 5.

Subp. 2. **Admission to written fundamentals examination.** To qualify for admission to the written fundamentals examination for a geoscience discipline, the applicant shall present evidence of the following:

A. graduation or being within 30 semester or 45 quarter credits of graduation from a geoscience curriculum approved by the board for the geoscience discipline the applicant is seeking licensure in, as specified in subpart 5;

B. graduation with a bachelor's degree from a non-board-approved curriculum with a minimum number of equivalent geoscience credits as specified in subpart 5; or

C. graduation with a master's or doctorate degree in a non-board-approved curriculum with a minimum number of equivalent geoscience credits as specified in subpart 5.

Subp. 3. **Admission to written professional examination.** To qualify for admission to the written professional examination for a geoscience discipline, the applicant shall present evidence of meeting the educational and qualifying experience requirements in items A and B.

A. Education:

(1) graduation from a geoscience curriculum approved by the board in the geoscience discipline in which the applicant is seeking licensure with the minimum number of geoscience credits as specified in subpart 5;

(2) graduation with a bachelor's degree from a non-board-approved curriculum with a minimum number of equivalent geoscience credits as specified in subpart 5; or

(3) graduation with a master's or doctorate degree in a non-board-approved curriculum with a minimum number of equivalent geoscience credits as specified in subpart 5.

B. Qualifying experience:

(1) completion of a minimum of five years of qualifying geoscience experience in the discipline in which the applicant is seeking licensure if the applicant has graduated with a baccalaureate degree from a geoscience curriculum meeting the requirements of item A, subitem (1);

(2) completion of a minimum of four years of qualifying geoscience experience in the discipline in which the applicant is seeking licensure if the applicant has graduated with a master's degree or higher from geoscience curriculum meeting the requirements of item A, subitem (1);

(3) completion of a minimum of six years of qualifying geoscience experience in the discipline in which the applicant is seeking licensure if the applicant meets the educational requirements of item A, subitem (2); or

(4) completion of a minimum of five years of qualifying geoscience experience in the discipline in which the applicant is seeking licensure if the applicant meets the educational requirements of item A, subitem (3).

C. Qualifying geoscience experience gained before completion of one of the education requirements in item A must meet the following conditions:

(1) experience must be credited at a rate of 50 percent; and

(2) experience gained before completion of at least two full years of one of the geoscience curricula specified in item A must receive no credit.

D. Credit awarded under item C must not exceed two years of the required number of years of qualifying geoscience experience in this subpart.

Subp. 4. [Repealed, 38 SR 59]

Subp. 5. **Approved geoscience education.** A curriculum approved by the board must meet the following criteria.

A. For an applicant seeking licensure as a professional geologist, the applicant shall present evidence of:

(1) a baccalaureate or higher degree with a major in geology from an accredited institution of higher learning; and

(2) a minimum of 30 semester or 45 quarter credits in geology with a minimum of 24 semester or 36 quarter credits divided among at least three of the following geology areas:

(a) physical geology;

(b) historical geology;

(c) stratigraphy;

(d) sedimentology or sedimentary petrology;

(e) mineralogy;

- (f) igneous and/or metamorphic petrology;
- (g) structural geology;
- (h) hydrogeology;
- (i) geochemistry;
- (j) geophysics;
- (k) glacial/quaternary geology;
- (l) geomorphology; and
- (m) field geology or geologic field methods.

B. For applicants seeking licensure as a professional soil scientist, the applicant shall present evidence of meeting the criteria in subitems (1), (2), and (3).

- (1) A baccalaureate or higher degree from an accredited institution of higher learning;
- (2) A minimum of 16 semester or 24 quarter credits in soil science. Soil science courses include a minimum of two semester or three quarter credits in each of the following four soil science areas:

(a) soil physical properties, soil biophysical environment, or soil water relations including:

- i. soil physics;
- ii. environmental biophysics;
- iii. microclimatology;
- iv. applied climatology;
- v. soil mechanics; or
- vi. soil irrigation or soil drainage;

(b) soil chemical properties or soil chemical processes including:

- i. soil chemistry and mineralogy;
- ii. soil clay mineralogy;
- iii. soil fertility;
- iv. plant nutrients in the environment;
- v. micronutrients in agriculture; or
- vi. sodic and saline soils;

(c) soil biological properties, soil biochemical process, environmental ecology, or soil microbial ecology including:

- i. soil microbiology;
- ii. soil biology;
- iii. soil microbial ecology;
- iv. soil fertility; or
- v. environmental biophysics;

(d) soil genesis, soil classification, pedology, or soil morphology including:

- i. soil geography;
- ii. soil classification, genesis, or morphology;
- iii. wetland soils; or
- iv. field study of soils;

(3) A minimum of 14 semester or 21 quarter credits in closely related geoscience courses including any of the following categories:

- (a) geology;
  - i. groundwater geology;
  - ii. introduction to geology or introduction to physical geology; or
  - iii. any geology course listed in item A, subitem (2);
- (b) hydrology and water quality;
- (c) water and wastewater microbiology;
- (d) soil and hazardous waste processing I or II;
- (e) Geographic Information Systems (GIS) in natural resource systems;
- (f) aerial photo interpretation;
- (g) remote sensing;
- (h) natural resource inventory;
- (i) introduction to land use planning;
- (j) land use and state government;
- (k) agronomy;
- (l) agricultural engineering;

- (m) engineering or forestry courses related to soil management;
- (n) plant physiology; or
- (o) ecology courses.

C. A maximum of three semester or five quarter credits of masters or doctorate degree thesis credits can be applied to the total number of credits.

D. The same course must not be used to meet the requirement for more than one area.

Subp. 6. **Qualifying experience defined.** Qualifying experience for geology licensure must be obtained under the direct supervision of a licensed geologist. Qualifying experience for soil science licensure must be obtained under the direct supervision of a licensed geologist, licensed soil scientist, or licensed professional engineer who has qualified education and experience in the soil science discipline.

A. As used in this part, "qualifying experience" consists of varied, progressive, nonrepetitive, practical experience in the discipline of geoscience in which the applicant is seeking licensure that develops the applicant's ability to apply the knowledge gained during academic training to make sound judgments in completing geoscientific work and prepares the applicant to assume responsible charge of the work involved in the practice of the geoscience discipline in which the applicant is seeking licensure.

B. The experience must include elements of research and analysis, planning, specifications, codes and standards, economics, safety, observation of ongoing work, and inspection of the project.

C. Experience must be written in detail, verified by the applicant's supervisor, and submitted with the application for evaluation and approval by the board.

D. Qualifying experience must be acquired after graduation from a baccalaureate or higher degree curriculum that meets the requirements in subpart 5, except that continuous experience in periods of ten or more weeks gained before graduation shall be counted if gained as specified in subpart 3, item C.

Subp. 7. [Repealed, 38 SR 59]

**Statutory Authority:** *MS s 326.06*

**History:** *22 SR 90; 38 SR 59; 43 SR 89*

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