

Kansas State Board of Technical Professions – Geology Curriculum Guidance Document

Background The Kansas State Board of Technical Professions (KSBTP) formed The Geology Task Force in the spring of 2021 to examine the professional geologist education requirements.

Purpose To provide guidance for current and future applicants, universities, KSBTP board members and staff. This guidance is not intended to replace or alter a regulation or statute, but instead clarify education requirements for the licensing of geologists.

Task Force Meetings A series of meetings were held to discuss the education requirements. Representatives from the following groups:

- Board members and staff of KSBTP,
- Representatives from the National Association of State Boards of Geology (ASBOG),
- A representative from the Kansas Board of Regents,
- Attorneys from the Office of the Kansas Attorney General,
- President of the Kansas Geological Society, and
- Professors from the University of Kansas, Kansas State University, Emporia State University, Wichita State University and Fort Hays State University,

met in the later part of 2021. During these meetings, it was found universities and colleges' geology, earth science and geoscience departments have changed course names and degree titles in recent years to respond to current needs and interests of the job market. It also became apparent these varying departments taught similar areas of geology study with varying course and degree titles.

ASBOG shared with the group the changing of non-traditional programs and course names is not unique to Kansas schools. Other state boards have had similar discussions concerning non-traditional programs.

The underlying statute, KSA 74-7041a, PROFESSIONAL GEOLOGY MINIMUM QUALIFICATIONS, requires:

(1) Graduation from a course of study in geology, or from a program which is of four or more years in duration, and which includes at least 30 semester or 45 quarter hours of credit with a major in geology or a geology specialty that is adequate in its preparation of students for the practice of geology.

Degrees in geology, geoscience, earth science, etc. may satisfy the education requirements depending on the course work undertaken. The titles of the degree or of the courses taken is not controlling but rather it is the content and the successful completion of needed course work. Semester or quarter hours of credit adequate in the preparation for the practice of geology may include but are not limited to courses in the core and elective geology curriculum reflected in Table 1.

If an applicant has not completed the core course work and three electives outlined in Table 1, an applicant's individual geology curriculum will be evaluated for compliance with K.S.A. 74-7041a and K.A.R. 66-9-6.

Table 1- Geology Areas of Study

CORE	ELECTIVES
General Geology	Hydrology
Structural Geology	Economic Geology
Stratigraphy or Sedimentary	Geophysics
Mineralogy	Historical
Petrology	Geomorphology
Field Geology	Engineering Geology
	Geochemistry
	Paleontology

Board Action The board agreed at its board meeting on July 8, 2022, to adopt this guidance document containing core and elective subjects for the evaluation of applications. It was also directed this guidance be posted on the Board of Technical Professions official webpage. In addition, the board thought it beneficial the areas of study have a brief description to further aid in determining eligibility.

General Descriptions of Core Studies

General Geology- Introduction to the principles of earth science. Study of the formation, occurrence, and structure of minerals and rocks; action of streams, oceans, glaciers, and other agents in the formation and modification of the landscape; volcanism, earthquakes, and plate tectonics.

Structural Geology- A study of primary and secondary rock-structures and their genesis. Techniques of structural analysis and mechanics of rock deformations.

Stratigraphy or Sedimentary- A study of the principles of lithostratigraphy, biostratigraphy, and sequence stratigraphy. Methods of analysis of stratigraphic data focus on the interpretation of earth history. Physical, chemical, and biological processes in surface and near-surface environments applied to the recognition of the depositional environment, preservation, and alteration of sedimentary rocks.

Mineralogy- Crystallography, physical and chemical properties of minerals with the emphasis on mineral identification using laboratory analysis.

Petrology- Investigation of physical and chemical processes forming igneous, metamorphic, and sedimentary rocks. The microscopic examination of rock mineralogy and textures.

Field Geology- A study of methods used to collect geologic data in the field. For example, map-reading, rock description, use of aerial photography, and the construction of geologic maps and cross sections.

General Description of Elected Studies

Historical Geology- Systematic review of earth history and its preservation in the rock record using field evidence for sequences of physical, biological, and tectonic events in selected areas. Also includes the origin and evolution of life.

Paleontology- A study of the structure and evolution of ancient life; the nature and diversity of life through time; the interactions of ancient organisms with their environments and the information that the study of fossils provides about ancient environments; the use of fossils to determine the ages of rocks and the timing of past events in earth history; and the patterns of extinction through time.

Hydrology- The hydrologic cycle, physical and chemical properties of water; fluid flow through permeable media, exploration for and evaluation of groundwater, water quality and pollution, and water law.

Geomorphology-The study of landforms and surficial deposits, with an emphasis on earth-surface processes.

Geophysics- A study of gravitational, magnetic, seismic, electrical, and thermal properties of the earth. Measurements, interpretation, and applications to exploration, earth structure, and global tectonics.

Geochemistry- The chemistry of natural aqueous solutions and their interaction with minerals and rocks; thermodynamics and kinetics of reactions; emphasizes application to sedimentary environments and environmental problems.

Economic Geology-The study of the origin, extraction, and use of metallic and nonmetallic mineral deposits.

Engineering Geology- Techniques of site exploration, engineering properties of soil and rock, geologic conditions important in the design of major structures, and geologic information useful in land-use planning.