

COLLEGE OF GEOSCIENCES

Geosciences Rubric for Undergraduate Courses

The level (100, 200, 300 or 400) of a course is justified by one of two methods.

Method 1: Prerequisite Tree

For a course that depends on prerequisites and/or is a pre-requisite for another course, the level is justified by the numbers of the other course. For example, a 400-level course could have a 300-level course as prerequisite, which in turn could have a 200 or 100 level course as prerequisite, as shown here:

GEOL 150 → GEOL 152 → GEOL 306
GEOL 150 → GEOL 210 → GEOL 341, GEOL 450

Method 2: Learning Outcomes

In the absence of prerequisites, the course level is based course learning outcomes indicated on the syllabus. The level of the course is based on the preponderance of the learning outcomes within the undergraduate degree program. Learning outcome are categorized as a level of knowledge or skill as follows:

- Novice* – the first step along a path of a given topic, true introductory material; some students may be at this level on some topics when they enter college.
- Developing* – depends on some preceding level of knowledge from a college-level course, but students are expected to progress beyond this.
- Proficient* – minimum level required for graduation on a topic
- Expert* – a level beyond that required of every student for graduation. For any given topic, some students will reach this level but not all. (Most students will reach Expert level on some topics)

These terms are relative to the knowledge and skill level that that an average student is likely to attain during their degree program. Multiple outcomes in the sequence may be in a single course. The example below refers to learning outcomes all relate to the heat in the Earth:

- N: Define pressure and temperature, and describe their variation with depth in the Earth.
- D: Describe how changes in pressure, temperature, & pressure affect the state and rheology of earth materials.
- P: Distinguish the sources of heat in the deep Earth and the mechanisms of heat transfer.
- E: Quantify the balance of heat sources and transfer mechanisms, and relate to global cooling rates and regional tectonic processes.

The example below refers to written communication:

- N: Organize content into paragraphs with logical flow of thought, proper grammar and appropriate language; reference all sources, using correct format..

D: Identify audience and goal of document; accurately describe observations and procedures; distinguish observation from inference.

P: Comprehensively convey a scientific idea, supporting conclusions with data and analyses and integrated visualizations.

E: Describe your ideas and opinions in a persuasive way, supported by data.

Once all the learning outcomes have been categorized, the stated outcomes for most courses will have a *mixture* of levels. Lower level courses should have a preponderance of N's and D's, while upper-level should be dominantly P's and E's.

Therefore, our definition of course levels is as follows:

Plurality of outcomes at Novice level: 100

Majority of outcomes at Novice or Developing level: 200

Majority of outcomes at Proficient or Expert level: 300

Plurality of outcomes at Expert level: 400