Geoliteracy: Teaching Early Career Students to Read, Write, and Think Like Geologists

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Introduction
The Westminster College Geology Program was established in 2014. Like many other institutions, our program originally included Senior Seminar in the curriculum. According to our original curriculum proposal, one goal of the seminar was that “Students have the opportunity to learn about the importance and utility of attending professional conferences, and to communicate their own research.” Senior Seminar was intended to teach students how to read, write, and think like geologists before they left our institution and began their professional careers. However, in 2015, before we offered our first Senior Seminar, we realized the value of an undergraduate geology student. As such, we revised our year-old curriculum to replace Senior Seminar with a course recommended for second-semester freshmen and sophomores either majoring or minoring in Geology – Geoliteracy. Geoliteracy

Creating Geoliteracy
We created Geoliteracy to meet a combination of both programmatic and course-specific needs. Our current curriculum determined our programmatic learning goals for our students. We used these goals to create learning objectives for our students.

Course Theme: What do geologists do?

Much of the first half of the seminar is devoted to teaching students about the various career paths available to geologists. This includes a day on the graduate school application process as well as labs working on cover letters, resume tips, and personal statements. These documents are not just for students’ personal edification. At the end of this segment of the class, students prepare for field camp in the coming summer are encouraged to see where they have prepared to apply for an internal field camp scholarship available through the geology program.

In addition to discussing geological careers, the students also include a field lab to teach students about the various career paths available to geologists. This includes a day on the graduate school application process as well as labs working on cover letters, resume tips, and personal statements. These documents are not just for students’ personal edification. At the end of this segment of the class, students are encouraged to see where they have prepared to apply for an internal field camp scholarship available through the geology program.

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Course Theme: Reading and writing like a geologist

One of our goals in Geoliteracy is to teach students how geologists communicate, both with each other and with the general public. We get students engaged with the geological community by requiring students to read at least three original scientific research articles in the same issue from a global perspective. After that, each week students are responsible for reading and discussing a previously published peer-reviewed research paper from our class’s scientific journals. As such, we revised our year-old curriculum to replace Senior Seminar with a course recommended for second-semester freshmen and sophomores either majoring or minoring in Geology – Geoliteracy. Geoliteracy

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Course Theme: Geology as a field science

The final thing that we want students to take away from Geoliteracy is some basic field skills. We spend a day with students teaching basic geological mapping of a portion of the Silver Island Range in the Utah Nevada border.

The gully that we have students map is a relatively small area consisting of alternating beds of limestone and tuffins topped off with a columnar flow. Since these students are a mix of experiences, some of which have not yet taken structural geology, we want them to see the real-world applications and the maps we ask them to make simple and concrete more on process than interpretation. Questions we ask students to consider include:

- How many different rock types do you think exist here?
- How do you know there was a columnar flow?
- How do you think this area was formed?
- How do you think this area was formed?

While doing this, what would you do differently the next time?

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