

Working towards a geoscience-literate public: Description of an innovative undergraduate course entitled “Geology and Human Health”

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Summary

It is imperative that the public has a basic understanding of Earth processes, resources, and timescales, in order to evaluate information and make informed decisions in their daily life. Nowlan (2001) pointed out that earth scientists hold the key to educating the public about the connections that people have with our planet, and he recommended that we should place more of a social context on earth science teaching and learning. The course “Geology and Human Health” at the University of Calgary aims to introduce non-geology majors (and interested majors) to a wide variety of human health concerns that relate to Earth materials. Examples of topics covered include: natural dust, volcanic gases, heavy metals in soil and drinking water, soil nutrient deficiencies, asbestos, fluorine, radon, coal combustion, silicosis, oil spills and geophagy. Previous research has shown that learners are more engaged with course material that is relevant to their own experiences (e.g. St. John and Callahan, 2003). With this in mind, topics in the course included case studies from southern Alberta, but also from countries worldwide, reflecting the diversity of backgrounds and cultures of students in the class. Lectures may involve watching educational video clips, answering questions related to the videos either as a large class or in partners, and discussing news articles and peer-reviewed literature on the topic. Several classes focus on geologically-related health concerns for Indigenous groups in Canada and the United States, such as groundwater contamination from mercury or uranium by-products. In order to encourage students to dig deeper into a topic of their choice, each student had to create an “infographic” that contained eye-catching text and figures, and also write a research report showing that they were able to integrate and evaluate information from both primary and secondary sources. Preliminary feedback from students suggests that they appreciated the opportunity to be creative in the design of the infographic, and they enjoyed researching a topic that they were personally interested in. Most importantly, many students reported that learning about these topics has changed their thinking about how humans are connected to the Earth. For example, several students mentioned that they have implemented a radon detection device in their basement, or had their tap water analyzed for lead since taking this course.

References

Nowlan, G.S. (2001) The Earth and Its People: Repairing Broken Connections. *Geoscience Canada*, 28(2): 51-54.

St. John, K. & Callahan, J. (2003) Making Geology Relevant to Non-Science Majors Through the Environmental Site Assessment Project. *Journal of Geoscience Education*, 51(4): 431-435.