A Problem-Based Learning Approach to Introductory Soil Science. (A01-amador143729-Poster)

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Abstract:

Although effective for conveying a lot of information to large numbers of students, the lecture format commonly used to teach introductory soil science is less effective in promoting critical thinking, problem solving, and communication skills. To address these shortcomings, we developed an introduction to soil science course using Problem-Based Learning. Students (47 total) were placed in permanent, randomly assigned groups of 4 or 5 and worked on solving six real-world problems in class. Problems were accompanied by a list of learning objectives based on the Fundamental Performance Objectives of the Council of Soil Science Examiners. Groups were asked periodically to list and discuss what they knew, what they needed to know, and why they needed to know it. At the end of a problem, each group presented a summary of their approach. Group assessment (50% of grade) consisted of a 7-page synthesis paper that introduced the problem, described their solution, and summarized their conclusions. One round of revisions in response to instructor comments was allowed. Individual assessment (50% of grade) consisted of multiple-choice exams (based on learning objectives) in two timed stages, with half-credit earned for explaining wrong answers in the second stage.

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