Teaching field research in soil science using the problem based approach

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Professional opportunities in soil science demand successful applicants have experience using an integrative, cross-disciplinary, team work approach to problem solving. Currently there is a movement to promote engagement, team work, improve comprehension, and enhance critical thinking by implementing problem-based learning into the soil science curriculum. Our aim was to develop a field research course in soil science under this problem based framework. The main concept was a central field research problem for students to develop, design, and work on throughout the term. Students were assigned into groups with a wide range of skills and backgrounds to simulate a professional working environment they will face in the real world. Students were asked to document their learning challenges faced with this new learning approach through multiple surveys, discussions, reflective commentaries and evaluations. Suitable assessments and timely feedback were crucial in ensuring the successful outcome from this style of teaching. Some challenges faced by students were quite similar to the challenges faced by working professionals in the field of soil science. These key challenges include effective time management, assignment of roles, and division of labour. Most students reported improvement in knowledge retention, verbal and written communication skills, ability to work in teams, critical thinking and problem solving skills. Problem based learning is an effective teaching approach to prepare students for a career in the soil science field.