

Abducted by Aliens? Teaching Critical Reasoning Skills Through Astrobiology

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One goal of undergraduate education is to develop a scientifically literate population of individuals with the capability to think critically about science related topics. As an interdisciplinary science, astrobiology presents a unique context in which to accomplish this goal. This purpose of this poster is to describe the implementation of an innovative mode of assessment in an undergraduate astrobiology course that strongly promotes students' abilities to evaluate scientific evidence, make scientific arguments, and gain a deeper appreciation for the subtleties associated with "the scientific method". This mode of assessment, commonly known as portfolio assessment, was developed through the collaboration of a small team of scientists, science educators, and instructional technologists to be used in a class of over 100 non-science majors. Students in the class were not assessed using traditional materials, such as homework, quizzes, and exams, but were assessed based on a portfolio representing the students' best work. These portfolios consisted of a breadth of activities and assignments ranging from museum exhibits about astrobiology to analysis of real astrobiology data to detailed critiques of authentic scientific papers. Furthermore, students were encouraged to pursue depth of understanding in a topic by choosing portfolio pieces in a single discipline (e.g. biology, geology, astronomy). This poster discusses the challenges, rewards, and practicality of implementing this type of assessment in the large lecture environment.