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The NSPIRE IGERT Program is a multidisciplinary student doctoral training program designed to create a new generation of scientists with broad and rigorous training in nitrogen cycling who seamlessly integrate nitrogen cycle science for effective communication with public policy makers.

Research Title: Conceptual Change of Doctoral Students in an IGERT Fellowship

Devlin is researching how PhD science and engineering students develop conceptual understandings of nitrogen science and how their previous experience and views of knowledge and knowing change and interact with their learning. Conceptual understanding occurs through conceptual change, and is differentiated from other kinds of learning because it involves fundamental changes in the mental models and frameworks of individuals. The process of conceptual change is assumed to take place during science and engineering education, but has often been shown not to occur; education as commonly practiced does not often change individuals' pre-conceived notions of scientific and engineering phenomena. Devlin's work is focused on the long-term conceptual and epistemological changes undergone by highly educated people learning in an integrated discipline. The goal of this research is to describe conceptual changes as they occur over a much longer time period than has been studied previously in order to more fully characterize the processes and scale of conceptual change. Understanding how conceptual changes take place will ultimately lead to more effective methods for change in all learners.

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