



GK-12 REGIONAL CONFERENCE

**Purdue University
West Lafayette, IN**

The Indiana Interdisciplinary GK-12: Bringing Authentic Problem Solving in STEM to Rural Middle Schools

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The Indiana Interdisciplinary GK-12 combines the interdisciplinary research focus of Purdue University with the rural and small town learning context of three Indiana school corporations. The project aims to improve middle school science education while dramatically enhancing STEM graduate students' experience and understanding of learning and teaching. Using the interdisciplinary team approach that is central to much current scientific research, and in direct response to needs expressed by our teacher focus group, this project uses authentic problem solving in interdisciplinary scientific themes as a way to engage student interest and develop effective teaching of STEM in middle schools.

Interdisciplinary learning teams will combine university faculty mentors, graduate fellows who are engaged in interdisciplinary research, middle school teachers developing theme-based learning approaches, and outreach coordinators who specialize in university-K-12 knowledge transfer. Working at the request of host schools that have identified curricular areas for improvement, the teams will modify, test, and implement curricular theme units using a constructivist, inquiry-based approach focused on authentic interdisciplinary problem-solving. The fellows and faculty mentors will be selected from diverse STEM areas to provide expertise in content and interdisciplinary research, and the teachers and outreach coordinators will provide expertise in pedagogy and assist fellows in learning about middle school learning contexts. Part of the work will involve distance learning approaches to overcome limitations provided by the dispersed nature of rural communities. The project's evaluation staff will assess the impact of the project on teachers' and students' abilities and attitudes, evaluate changes in the skills and knowledge that graduate fellows have about learning and teaching, and track the fellows' subsequent performance as STEM faculty or professionals.

