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# Research Experience via Active Collaboration with High Schools (REACH)

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## Enrichment program for high school students and teachers

## Symbiotic and sustained collaborative "research group" environment

### Strategies

- ❖ Problem based learning (PBL)
- ❖ Peer-led team learning (PLTL)
- ❖ Process oriented guided inquiry learning (POGIL)

### 100 hour program

- ❖ 50 hours of group work to learn about **scientific method**
- ❖ 50 hours of individual work to develop individual **science fair** projects

### Participants

- ❖ 24 high school students, 92% finished
- ❖ 9 high school teachers – 3 counties and 5 schools
- ❖ 4 UWG chemistry undergraduate students
- ❖ 4 UWG Chemistry faculty

### Roles

- ❖ HS students and UWG students mentors developed academic (content and conceptual knowledge) and non-academic (teamwork, leadership, problem solving, higher order and critical thinking) skills.
- ❖ HS students and HS teachers accessed advanced chemical instrumentation, laboratory facilities, and library resources resulting in competitive science fair projects.
- ❖ HS teachers experienced new pedagogical techniques such as PBL, PLTL and POGIL to implement in their own classrooms.
- ❖ UWG faculty helped to prepare and recruit more prepared HS students to major in as well as retain and graduate more skilled undergraduate from the Chemistry program at UWG.

Collaborative learning environment built confidence to do individual and group work.

Communication with peers, mentors and a large audience was a central component of the program.

## REACHing new heights!

- ❖ 22 students presented at REACH finale.
- ❖ 12 students placed at the school level.
- ❖ 7 students moved on to regional competitions.
- ❖ 5 students placed in the regional competition.
- ❖ 2 students placed at the 2012 state science fair.
- ❖ 1 student represented GA at the national Youth Science Camp.

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"This program was a great experience. I loved the project I chose to do. Without the REACH program, I would not have been able to do this project."

"[I feel v]ery comfortable. I completely understand the science behind the procedure and information that I personally researched."

"[I feel a] lot more comfortable than I did going into the reach program. I now understand it's ok to make a mistake, just make sure you learn from it."