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**To:** ["TEACHING-TOOLBOX@LISTSERV.JMU.EDU"](mailto:TEACHING-TOOLBOX@LISTSERV.JMU.EDU)  
**Subject:** Teaching Toolbox: POGIL: Not Just Problem-Based Learning  
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## **POGIL: Not Just Problem-Based Learning**

**By Kristi Lewis**

There is much discussion on active learning versus the traditional face-to-face lecture format. Active learning is [defined](#) as a “process where by students engage in activities such as reading, writing, discussion, or problem solving that promote analysis, synthesis, and evaluation of class content.” As other Toolboxes have indicated, research supports the benefits of active learning ([Freeman et al., 2014](#)). Another example of active learning is Process Oriented Guided Inquiry Learning (POGIL), a student-centered inquiry-based method of instruction.

According to the [POGIL website](#), POGIL is a student-centered instructional technique where small teams of students complete activities that are specifically designed to guide them to the constructions of their own knowledge and understanding of a content area or topic. While initially developed for instruction in chemistry courses, POGIL has been used in various STEM and non-STEM courses, including computer science ([Hu and Campbell, 2016](#)), biomechanics ([Simonson and Shadle, 2013](#)), and calculus ([Beneteau et al., 2017](#)). The activities usually provide the students a model to interpret and then specific questions follow that allow the students to form and build on knowledge to gain an understanding of the content. In POGIL, the focus is more on the process by which students complete the questions. Through this process, students gain a number of skills often desired in both graduate programs and the workforce, such as critical thinking, team work, problem solving, information processing, and oral and written communication.

Each student within a team has a specific role such as:

- Manager – oversees and keeps team on track
- Recorder – takes notes and provides instructor with a copy of the completed activity
- Presenter – spokesperson for the team
- Reflector – observes and takes notes of the process utilized by the team to complete the activity

During POGIL activities, instructors play the role of facilitator rather than lecturer, and works to create conducive learning environment, explain activity and content objectives, facilitate and monitor individual and team progress, and ask questions at regular intervals to assess understanding of content

In addition to the skills students can acquire, there are a number of other benefits to using POGIL in the classroom. One study found that students engaging in POGIL activities demonstrated an increased level of academic confidence ([De Gale and Boisselle, 2015](#)). Other benefits include:

- Improving instructor-student interactions
- Decreasing student's inhibition to ask questions
- Creating an active and engaged learning environment
- Helping students to apply course content
- Fewer withdrawals, D, and F grades

Chris Mayfield, Associate Professor of Computer Science, has been using POGIL in his courses for many years. Chris recommends attending a summer workshop and reviewing the materials on the POGIL website ([www.pogil.org](http://www.pogil.org)). If you have any questions or would like more information on POGIL, Chris is willing to discuss his POGIL experience with you.

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