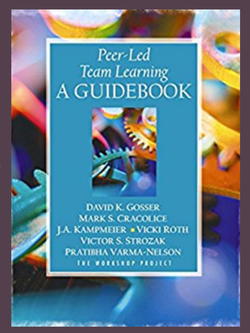
Peer-Led Team Learning (PLTL) at UWRF

Department of Chemistry and Biotechnology, University of Wisconsin-River Falls

What is PLTL?

Peer-Led Team Learning, more often called PLTL, is a workshop model for teaching and learning science and math subjects. In a PLTL workshop, a small number of students in the course (8-12) work together on a packet with a peer leader who was recently successful in taking the same course.[1]

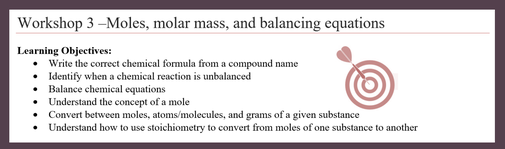


Implementation at UWRF

At UWRF, PLTL is used to supplement our General Chemistry I course (Chem 111). When students sign up for Chem 111, they sign up for 4 total credits – 3 credits for lecture and 1 credit for discussion. The discussion section is where PLTL is implemented.

Role of Instructors

The instructors for each Gen Chem I course meet with the PLTL coordinator once per week to develop a packet of practice problems that are most appropriate to the progress of the course at that point in time. This ensures the discussion sections are meeting the needs of the students each semester.



Workshop 3 –Moles, molar mass, and balancing equations

Learning Objectives:

- Write the correct chemical formula from a compound name
- Identify when a chemical reaction is unbalanced
- Balance chemical equations
- Understand the concept of a mole
- Convert between moles, atoms/molecules, and grams of a given substance
- Understand how to use stoichiometry to convert from moles of one substance to another

The Leader Experience

PLTL Courses

In addition to being paid for their time, PLTL leaders enroll in two courses – Seminar in Academic Mentoring (UNIV 200) and Practical Applications in Academic Mentoring (UNIV 201). In UNIV 200, new leaders learn the PLTL model and how to be an effective leader. Students learn how to write a syllabus, create a welcoming Canvas page, and how to promote a collaborative environment in their classroom.

Preparation for Discussion

UNIV 201 is time set aside each week for leaders to get together with the PLTL coordinator and Gen Chem I instructors. During this time, the leaders work through the workshop packet for future discussion sections and practice how they might encourage their students to interact with the content. This course is also used to reflect on and share the leaders' experiences.

Leaders work together to prepare for the following week's workshop on thermochemistry.

PLTL leader Chase listens to a group of students explain their answer to a question on the workshop packet about gases.

PLTL Discussion Sections

This is where Gen Chem I students meet with their PLTL leader to work through the packet that the Gen Chem I instructors and PLTL coordinator put together for them. This is content that was introduced as new in the lecture and is practiced in the discussion.

PLTL Effectiveness

At UWRF, we have observed many benefits of incorporating a PLTL Program into our Gen Chem I courses.

Benefits for students include[2]:

- Better performance in the course
- Longer persistence in STEM
- Deeper understanding of the subject

Benefits for leaders include[3]:

- Better problem-solving skills
- Increased awareness of their own studying and learning
- Enhanced interpersonal skills
- Improved confidence in chemistry subject matter

How to Get Involved

If you are interested in being a PLTL leader, you can reach out to your chemistry instructor or the PLTL Coordinator, Becca Haley (rebecca.haley@uwrf.edu) for more information.

Hiring Process

PLTL leaders are usually recommended to the PLTL coordinator by their chemistry instructors or by the PLTL leader they had for Gen Chem I. Students who are recommended are contacted by the PLTL coordinator to fill out a short application and participate in an interview to determine fit and schedule availability for the program.

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References

1. Gosser, D. K.; Cracolice, M. S.; Kampmeier, J. A.; Roth, V.; Strozak, V. S. *Peer-Led Team Learning: A Guidebook*, Pearson College Div, 2000.
2. Wamser, C. C. *J. Chem. Educ.* **2006**, *83*, 1562-1566.
3. Gafney, L.; Varma-Nelson, P. *J. Chem. Educ.* **2007**, *84*, 535-539.