

## Undergraduate Biology Instructors Mostly Use Teacher-Centered Discourse Even When Teaching in Active Learning Environments

Date: **2/7/2020**Time: **10:30—11:45 AM**Location: **COB1 110****Petra Kranzfelder**

Assistant Teaching Professor, Molecular &amp; Cellular Biology

University of California, Merced

For more information,  
contact : **Anna Beaudin**  
[abeaudin@ucmerced.edu](mailto:abeaudin@ucmerced.edu)

### Abstract

Guided by sociocultural perspectives on education, we examined the nature of teacher discourse moves (TDMs) used by biology teachers (N = 20) in undergraduate biology classes across three institutions. We used two tools, the Classroom Discourse Observation Protocol (CDOP) and the Classroom Observation Protocol for Undergraduate STEM (COPUS), to quantify TDMs and teacher instructional behaviors, respectively. We found biology teachers used teacher-centered TDMs (e.g., sharing) more frequently than student-centered ones (e.g., constructing). Statistical analyses revealed strong evidence for differences between individual CDOP ( $\chi^2 = 657.02$ ,  $df = 16$ ,  $p < 0.001$ ) and collapsed CDOP ( $\chi^2 = 162.82$ ,  $df = 3$ ,  $p < 0.001$ ) codes, suggesting differential enactment of TDMs by biology teachers. Interestingly, we found strong positive and statistically significant correlation between biology teachers guiding student learning and their use of authoritative, interactive approach ( $R = 0.46$ ,  $p = 0.00025$ ). This finding suggests that even when guiding student learning through active learning activities, teachers mostly ask students to recall concepts over collaborating to build knowledge. Therefore, we suggest biology teachers would benefit from teaching professional development opportunities to shift their discourse approaches from teacher-centered, authoritative approaches to more student-centered, dialogic approaches.

### About the Speaker

I was trained as both an entomologist studying impacts of coastal watershed land use on aquatic insect communities of estuaries in Costa Rica and a discipline-based education researcher studying student-instructor interactions and classroom discourse in active learning classrooms. My current research focuses on how to improve STEM education at the undergraduate and graduate level, especially at UC Merced.

