

# Harvard University Department of Physics Colloquium

Monday, September 12, 2022

4:30 PM ~ Jefferson Lab 250

Colloquium Tea

3:45 PM ~ Jefferson Lab 450

## *Students may be learning (even) more than they think: Lessons from science education research*

Despite strong evidence that active learning based on the principles of deliberate practice produce better educational outcomes, traditional lecturing remains the dominant mode of instruction in college STEM courses.

Why do students and faculty still find the concept of a traditional lecture appealing as a mode of instruction?

I will draw on some of our findings to show that it is due, in part, to the fact that the effortless associated with listening to a highly-polished traditional lecture can mislead students (and instructors) into thinking they are learning a lot. I will discuss the powerful interplay between perceived fluency, feeling of learning and actual learning and their rooting in cognitive psychology. These misperceptions have broad implications for STEM education.

For instance, course evaluations based on students' perceptions of learning can inadvertently promote inferior (traditional) methods of instruction—a superstar lecturer can explain things in such a way as to make students feel like they are learning more than they actually are.

During the talk, I will also describe ways to significantly improve how much students learn outside of lecture. Specifically, I will focus on three (relatively) straightforward interventions you can implement in your course(s) and provide evidence for their effectiveness. Notably, I will explain how these out-of-classroom interventions have negligible impact on students' weekly time-on-task.



### **Louis Deslauriers**

*Director of Science Teaching  
and Learning in the Faculty  
of Arts and Sciences  
Senior Preceptor in Physics  
Harvard University*

To watch the colloquium by zoom, to go:

<https://harvard.zoom.us/j/95220936088?pwd=TXRKM3RDanptcFVUTXUoeEoxMlYrUTog>

**The Physics Monday Colloquium is supported by the Morris Loeb Lectureship Fund**

For more information please go to : <https://www.physics.harvard.edu>

