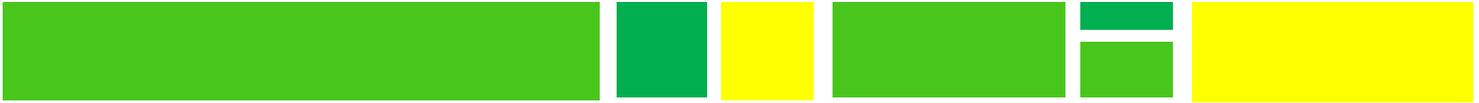




# Core Concepts and Coherence in the Teaching of Statistics

*Jim Stigler, UCLA*  
*Ji Son, Cal State LA*



## ABSTRACT:

Much of statistics education involves teaching students a wide range of statistical concepts and procedures: t-tests, ANOVA, regression, and so on. Because it is hard for students to understand when to use each of these techniques, we tend to focus on what differentiates them from each other instead of what they all have in common. In our recent work we are exploring the hypothesis that students can develop a more flexible and usable knowledge of statistics if they see the connections among all the topics they are taught. To accomplish this, we have identified a small set of core concepts, and then given students opportunities to repeatedly practice connecting these concepts to all of the topics in the introductory course. In this talk we will present the core concepts we have chosen to work with, and give examples of how we use them in the course of instruction. We will present preliminary evidence assessing students' subsequent ability to invent statistical techniques they were not exposed to by extending their core knowledge to novel circumstances.

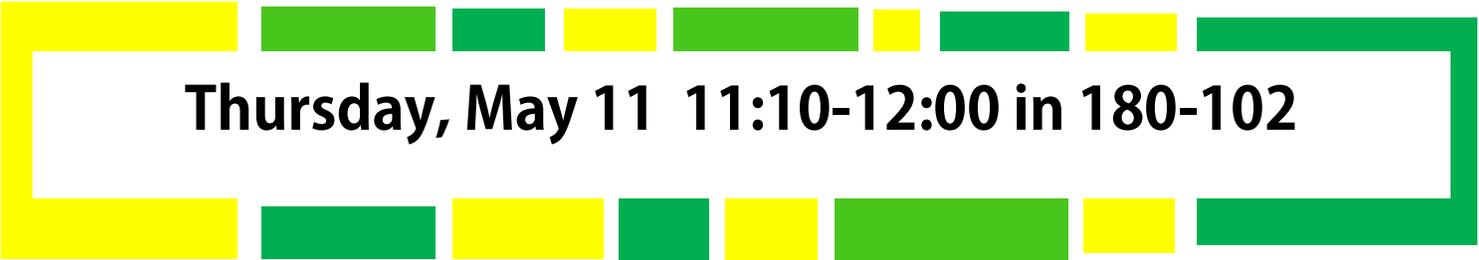
## BIO:

### Jim Stigler

Dr. James W. Stigler is Professor of Psychology at UCLA, and a Senior Fellow at the Carnegie Foundation for the Advancement of Teaching. He is co-author of two popular books: *The Teaching Gap* (with James Hiebert) and *The Learning Gap* (with Harold Stevenson), and was Director of the TIMSS Video Studies. His research focuses on mathematics teaching and learning, and on uses of technology to improve education.

### Ji Son

Ji Son is an Associate Professor of Psychology at California State University, Los Angeles (CalStateLA). She received her PhD in Psychology and Cognitive Sciences from Indiana University. Her primary research interests focus on fostering flexible learning and transfer in science and mathematics. She has collaborated with educators at every level, from teachers of preschool classrooms all the way to college professors, to examine design principles for lessons, manipulatives, and educational technology. <http://web.calstatela.edu/centers/learnlab>



**Thursday, May 11 11:10-12:00 in 180-102**