

HARVARD UNIVERSITY
DEPARTMENT OF STATISTICS



Tel. 617-495-5496
Fax. 617-496-8057
statdept@stat.harvard.edu
<http://www.stat.harvard.edu/>

Science Center 7th Fl.
One Oxford Street
Cambridge, MA 02138

STATISTICS COLLOQUIUM

MONDAY, SEPTEMBER 15, 2014

TALK: 4:15 PM — SCIENCE CENTER RM. 705

RECEPTION: 3:50 PM — SCIENCE CENTER, 7TH FLOOR

“Scaling Adaptive Education”

George B. Davis
Director of Data Science
Knewton, Inc.

ABSTRACT

In the thirty years since Bloom [1] attributed a 2-sigma improvement in educational outcomes to tutoring, differentiated learning has remained difficult to deliver at a reasonable cost to a mass audience. I will present Knewton's approach to this challenge, which focuses on scaling both user and content pools to achieve a better understanding of each. The talk is organized around three challenge problems relating to online modeling of student proficiencies, identification of multi-concept dependencies for assessments, and human-assisted inference of a latent matrix of content relationships.

[1] Bloom, B. (1984). "The 2 Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One Tutoring", *Educational Researcher*, 13:6(4-16).