2012-13 End of Year Overview
CWSEI Goals

1\textsuperscript{st}: Learning goals. (what should students be able to \textit{do}?)

2\textsuperscript{nd}: Good assessment (validated tests)

3\textsuperscript{rd}: Improved teaching methods \textit{(research based, improve learning)}
Carl Wieman Science Education Initiative
6 years in⇒ department-wide improvement in science education at UBC

CWSEI Programs at various scales and stages:

Large & mature:
   Earth, Ocean & Atmospheric Sciences
   Physics & Astronomy

Large and young:
   Mathematics
   Computer Science
   Life Sciences

Smaller – Chemistry, Statistics

SEE POSTERS- here a few highlights
Chemistry
STLF Kerry Knox, Dept Director Jackie Stewart

Ramping up! One STLF hired, another to start soon

Computer Science
STLFs (part time): Donald Acton, Ed Knorr, Steve Wolfman
Dept. Director: Ian Mitchell

New STLF model - Tenured teaching faculty members as part-time STLFs
EOAS Teaching Practices

Extent of use of research-based teaching practices

Percent

2007
2012
Some interesting results from CWSEI folks (to be pub.)

Targeted pre-class reading (Cynthia Heiner and Mandy Banet)

- clever way to confirm student reporting quite accurate
- 80% of students each week did the reading, & in productive manner
- 80% agreed was helpful to their learning, ~ 4% disagreed
- Same for biology and physics classes

“good” reading
Learning in two-stage exam
(Brett Gilley, Bridgette Clarkson)
• 2nd stage results in learning >40% of what did not know.
• Same across entire distribution (low to high)

Student views of 2 stage exams
C. Heiner and G. Reiger
• overwhelmingly like (87% felt should be used on midterms)
• primary reason was because of learning
• productive collaboration during second stage
Large survey of US university physics faculty members (Henderson, Dancy, and Niewiadomska-Bugaj, PRST-PER, 8, 020104 (2012))

1/3 of those trying research-based teaching methods (RBTM) later quit.

UBC faculty members that tried RBTM with CWSEI support and have had ≥ 1 year to quit—
1 out of 70!

Of the faculty members in EOAS & PHAS who adopted RBTM more than a year ago
At least 44 (>80%) have carried on into 2nd course with no (or very little) STLF help.

Sustainable growing improvements in teaching
**Morning Session 9:30-noon**

- **Carl Wieman:**
  *Teaching that takes advantage of your science expertise*
  *Overview of CWSEI activities*

- **Jackie Stewart:**
  *Some Surprising Results from Research on Learning*

- **Natasha Holmes:**
  *New Roles of Teaching Assistants*

- **Teaching Assistants Panel Discussion**

**12-12:30pm, ESB Atrium – Food & Conversation**

**Poster session 12:30-2:30pm ESB Atrium**

Details on what’s happening