Goals:

We compare the impacts of varying research-based reforms. Investigate features of individual reforms and the instructors, demographics, exam format, text are all different.

In mechanics, new instructor with non-Tutorial recitations lowered learning 7\% (albeit negative) shifts, little difference between courses, 59\%.

Introduction

“Following semester (new instructor, reversion to traditional red questions => additional course material, "Transferring Transformations: Learning Gains, Student Attitudes, Replicability"

\begin{tabular}{|c|c|c|c|}
\hline
#1: Fa 03 & #2: Fa 04 & #3: Sp 05 & \\
\hline
\hline
\end{tabular}

\begin{tabular}{|c|c|c|c|}
\hline
Learning gain (Sp04)= .66 +/- .02 & .45 +/- .02 & .57 +/- .02 & \\
\hline
\end{tabular}

\begin{tabular}{|c|c|c|}
\hline
% of students & normalized gain . & \\
\hline
% unfavorable & low pretest & \\
% favorable & high pretest & \\
\hline
\end{tabular}

\begin{tabular}{|c|c|c|c|}
\hline
Learning gain by gender & female & male & \\
\hline
Semester & #1: S04 & #2: F04 & #3: S05 & \\
\hline
\end{tabular}

\begin{tabular}{|c|c|c|}
\hline
% of students & PreF04 & PreS05 & \\
\hline
\end{tabular}

\begin{tabular}{|c|c|c|}
\hline
Score (%) (CU scoring) & PostF04 & PostS05 & \\
\hline
\end{tabular}

\begin{tabular}{|c|c|c|}
\hline
Question # & Fa04-Sp05 & \\
\hline
Tut-based questions non-tut average & \\
\hline
\end{tabular}

\begin{tabular}{|c|c|c|}
\hline
Score (%) (CU scoring) & Matched & (CU scoring) & \\
\hline
\end{tabular}

References