Academic Reporting Tools

Painting U-M by its numbers...

An exam study service for STEM courses @U-M

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Quick look at Problem Roulette

- Low-risk optional study service: *no points to lose!*
- Topical random access to past exam problems: *local content*
- Serves 8 STEM courses across 5 departments
- 3.7M problems served since 2013
- Analysis (just starting…)
  - 0.1–0.3 grade point boost for regular users
  - Reduced gender bias relative to final grade
  - A-students: 1-day earlier, 50% more problems than non-A
Problem Roulette schematic view

Problem Roulette: Studying Introductory Physics in the Cloud,
UM Physics 140 Midterm 1 Fall '02 Problem 16

16. Two stacked wooden blocks with coefficient of static friction $\mu_s$ are pushed across a frictionless surface by a force $F$ applied to the lower block. What is the largest force that can be applied so that the two blocks will slide together without slipping?

a) $\frac{(m_1+m_2)g}{\mu_s}$
b) $\mu_s m_1g$
c) $\mu_s (m_1+m_2)g$
d) $\mu_s m_2g$
e) $\mu_s (m_1+m_2)$
feedback after answer submission

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- d) $\mu_s m_2 g$
- e) $\mu_s (m_1+m_2)$
Average grade improvement 0.1 to 0.3 grade points persistent across all intro courses for “regular” (> median # probs) PR users
reduced gender bias for PR problems relative to final course grade
Want to get involved?

- service extensions (e.g., problem weights based on difficulty)
- further analysis - much more to be done!

3.7 Million problems served…
ART2.0

- refactoring and major extension of Academic Reporting Tools (2006 –)
- access levels
  - 0: students (~public)
  - 1: faculty/staff
  - 2: assoc. chairs/chairs/deans
- steering committee of 14 members; 3rd Century grant (DIG, PI Tim McKay)
- “beta” versions of level 0 and 1 to pilot this fall
- “Pokémon-style” card deck (one card per course)
- natural extension to “Pokémon-style” instructor deck
- opportunity: build reporting/advising services that utilize these decks
ART’s purpose: to inform academic decision makers of all kinds

ism? Is it not rather our doctrine, that a free people cannot know too much, and that the more we know, the more strongly shall we lay hold upon freedom? The clearer, the more perfect the element of light, the better we shall see.

Henry P. Tappan, U-M Chancellor’s Inauguration address, 21 Dec 1852

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