PLUS / MINUS GRADING

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Agenda

• Three implementation strategies
  • Reports on findings
    1. Agent-based simulation
    2. Dual-grading
    3. History-based grading

• Summary findings

• Questions
Strategy 1 (Agent-based simulation)

- (Started Summer 2012) led by Dr. Michael Long, implemented by an advanced student
- To aid in the assessment of the impact of the RGS on student GPAs
- Model uses existing GPA data to simulate student / faculty behavior under a number of varying assumptions
  - From actual GPAs of graduating undergraduate students, creates a large student body
  - Creates a transcript with classes & letter grades for each student based on their GPA, creating different transcript for each student
  - Convert the class letter grades to percentages ranging from 60% to 100%
  - Recreate transcript that includes +/- grades
- Calculate new GPA and compare it to the old
Agent-based simulation

• **Key concerns considered**
  - Significant change in undergraduate GPAs
  - Fewer students earning 4.0 GPA
    - Seen as a competitive advantage for professional schools
  - Masters students (graduate students) earning < 3.0 GPA
    - Required for program progression
  - Freshmen students earning < 2.0 GPA
    - Required for some for program progression and financial aid
Students Losing Perfect 4.0

- Most students will see little impact
- Fewer students will be able to achieve perfect 4.0 (~ ≥50%)
- Students losing perfect 4.0, would be
  - Undergraduate
    - Of 4,644 graduating seniors* over 2 years, 67 earned 4.0 (1.4%)
  - Graduate (MS)
- Depends on
  - Number of faculty using +/- Grading System
  - Cut-off value for A-
  - Student effort to achieve above cut-off

*(Modeled 5 X 4644 students)
MS Students* Attaining < 3.0

- Small increase of # students not able to achieve ≥3.0
- Students affected by attaining less than a 3.0, could be
  - Graduate Students (MS): 1.2 to 2.9% of graduating students

- Depends on
  - Number of faculty using +/- Grading System
  - Cut-off value used for A-
  - Cut-off value used for C-
  - Student effort to achieve above cut-off

*(Modeled 15 X 1718 students)
First Year UG Students* Attaining < 2.0

- Small increase of # students not able to achieve ≥2.0
- Students affected by attaining less than a 2.0, could be
  - Freshman: 1% to 8% increase in students not obtaining a 2.0 or better, this would be ~3 to ~21 students of which ~60% would not return (~2 to ~13)

- Depends on
  - Number of faculty using +/- Grading System
  - Cut-off values used for A- and C-
  - Student effort to achieve above cut-off

*(Modeled 5 X 4417 students)
Strategy 2: Dual grading

- **Fall 2012** – Randomly selected faculty invited to participate
  - (actual) whole-letter grades
  - (hypothetical) refined-letter grades
- **Mid November 2012**, whole-letter and refined-letter grades submitted for analysis
- Experiment *did not* affect student grades. RIT’s official grading system is still the same
- Joe Voelkel analyzed data
Strategy 3 (History-based grading)

- **Faculty Recruits / Volunteers**
  - Faculty who volunteered for Dual Grading were invited to also submit historic grades
  - Submitted whole-letter and refined-letter grades from previously taught courses (i.e., Spring 2012)
  - Joe Voelkel (KGCOE) analyzed data

- **Dual-system (2) and History-based (3) strategies**
  - Both sets of data were combined for the analysis
Strategies 2 & 3: Preliminary Notes

• One of Provost’s principles
  • “The implementation [to the refined grading system] shall have minimal impact on [1] retention, [2] student’s ability to retain financial aid, and [3] student’s progress towards degree completion.”

• Caveats of Strategies 2 & 3
  • Even if a random sample of faculty could be achieved…
  • Each of [1,2,3] above is based on individual students. The sampling is based on samples of classes. (No individual-student grading info.) Principles cannot be directly addressed.
  • Students trying to maximize GPA may now be adopting strategies under the whole-grading system, not the refined-grading system.
  • Faculty in the sample may be more lenient (78%: C or B?) under the current actual system than under the proposed hypothetical system (78%: B or B–?)
- Random sample, but not balanced response
- E.g., 2 of 3 largest colleges are under-represented

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### Results
- Reduction in many A grades
- Spread in B, C grades
- Occasional surprises in C, D grades
Summary Findings

• **Strategy 1**
  - Worst case impact on highest undergraduate GPA’s
  - Effect on other grade ranges will be dependent on a variety of factors, primarily faculty use of RGS

• **Strategy 2 & 3**
  - Faculty participation low (27% of selected) – this strategy is still a simulation
  - Data shows similar trends as Strategy 1

• **Overall**
  - No survey or simulation will consider every variable
  - Findings in these strategies in-line with those published in the literature after implementation of +/- grading
Questions?

The original taskforce

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