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## Cumulative Exams (with a twist)

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# Cumulative Exams (with a twist)

UNLV Best Teaching Practices Expo, 2017

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## The practice and the need it addresses

### Cumulative Exams

I use cumulative exams to  
(a) evaluate learning and  
(b) promote retention.

When first hearing about cumulative exams, students generally have a negative reaction – their impression is that cumulative exams are more difficult because knowledge has to be retained for longer periods of time.

To make cumulative exams more palatable to students, I came up with a unique administration method:

- 1) Because each exam is cumulative, I set it up so that a later exam gives students a second chance to demonstrate their understanding.
- 2) Students can replace their score on the previous exam if they score higher on the next one; however, if they perform worse, their original score remains the same.

## Evidence this practice benefits UNLV Students

### Cognitive Psych Research

Research in cognitive psychology has demonstrated that repeated testing is not only an effective way to measure learning, but it is also a way to increase long-term retention (e.g., Roediger & Karpicke, 2006).

Cognitive research has also clearly shown that distributed practice leads to better long-term retention than massed practice, such as cramming for one exam (e.g., Kornell, Castel, Eich, & Bjork, 2010).

Putting these findings together, research has shown that students (particularly, low-scoring students) retain more material after the course is over when the course uses cumulative exams throughout the semester (Lawrence, 2013).

Students are very receptive to this policy because it provides them with a second chance to do well on each exam (except for the last one). This policy can potentially reduce test anxiety because students know that they have a second chance.

## Resources and where to find them

### Microsoft Excel

- In Microsoft Excel, I first create one set of columns with students' original percentages for each exam (i.e., one column for Exam 1, Exam 2, etc.).
- In a second set of columns, I insert a formula for each exam for each student that compares the original percentage to the one that followed it. If the later exam had a higher percentage, then that higher percentage replaces the original exam percentage; otherwise, the percentage stays the same.
- Feel free to contact me for an example Excel spreadsheet that contains these example formulas:

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## How other UNLV teachers might adopt this practice

### Examples

This does not affect course content, it is applicable to any major, it increases rigor, and it is accepted by students!

#### Exam Policy:

- 1) All exams are cumulative
- 2) If the next exam is  $\uparrow$ , then the previous score is raised to that %.
- 3) If the next exam is  $\downarrow$ , then the previous score does not change.
- 4) An exam score is only (potentially) affected by the next exam.

#### Example:

Exam	Original Scores	Adjusted Scores
Exam 1	65%	<b>86%</b>
Exam 2	86%	<b>90%</b>
Exam 3	90%	90%
Exam 4	83%	83%

## REFERENCES

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