



# The Use of ALEKS to Remediate Gaps in Pre-Requisite Knowledge for PharmD Students

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## Background

- Colleges and schools of pharmacy have seen an increased number of matriculating students underprepared for the rigors of pharmacy school.
- Early identification of underprepared students along with modules to enhance readiness of foundational skills in mathematics and chemistry improves student motivation and leads to successful course outcomes.
- In Fall 2022, ETSU Gatton College of Pharmacy (GCOP) implemented ALEKS (Assessment and Learning in Knowledge Spaces; McGraw-Hill), an adaptive learning platform with pre-assessments and individualized learning modules tailored to students' learning needs.
- Students complete pre-assessments and learning modules during Gatton Ready transition program with faculty and tutor support.
- Instructors customized ALEKS content in calculations (84 topics) and chemistry (40 topics) to best support student needs for P1 courses.

### Outline of Calculations Topic Categories

- I. Whole numbers
- II. Decimals
- III. Percentage, Ratio, and Proportion
- IV. Measurements and Conversions

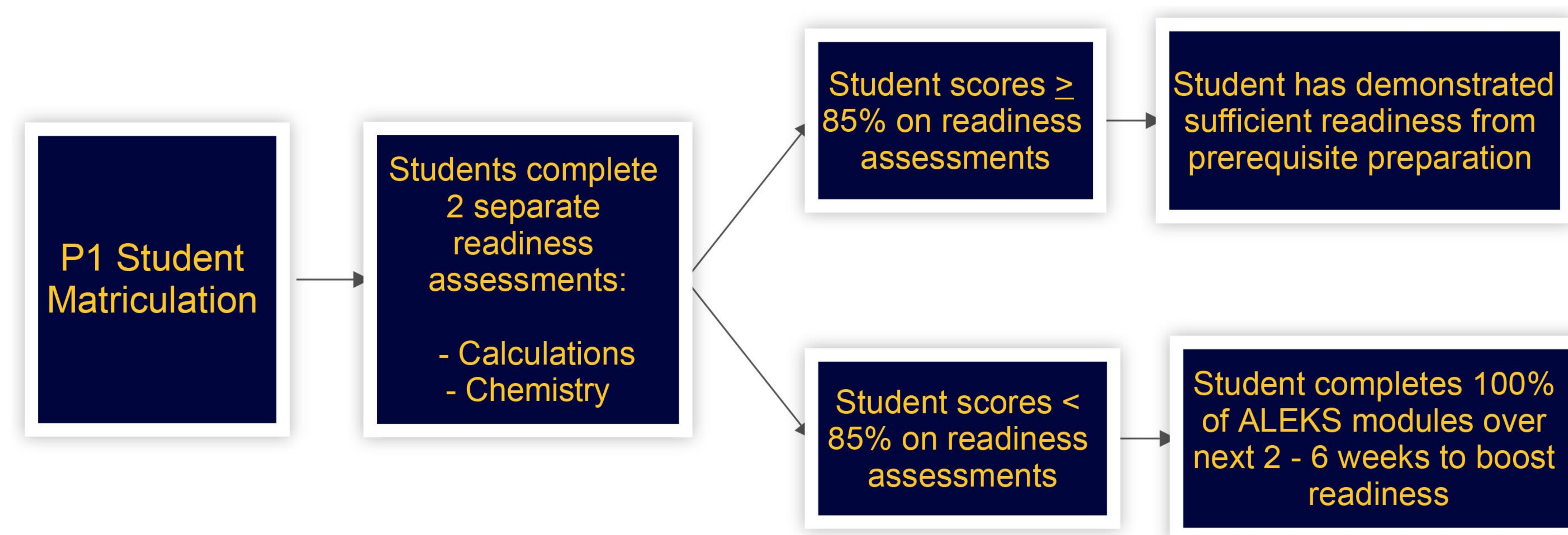
### Outline of Chemistry Topic Categories

- I. General Chemistry Review
- II. Structures and Bonding
- III. Organic Acids and Bases
- IV. Hydrocarbons
- V. Functional Groups
- VI. Stereochemistry

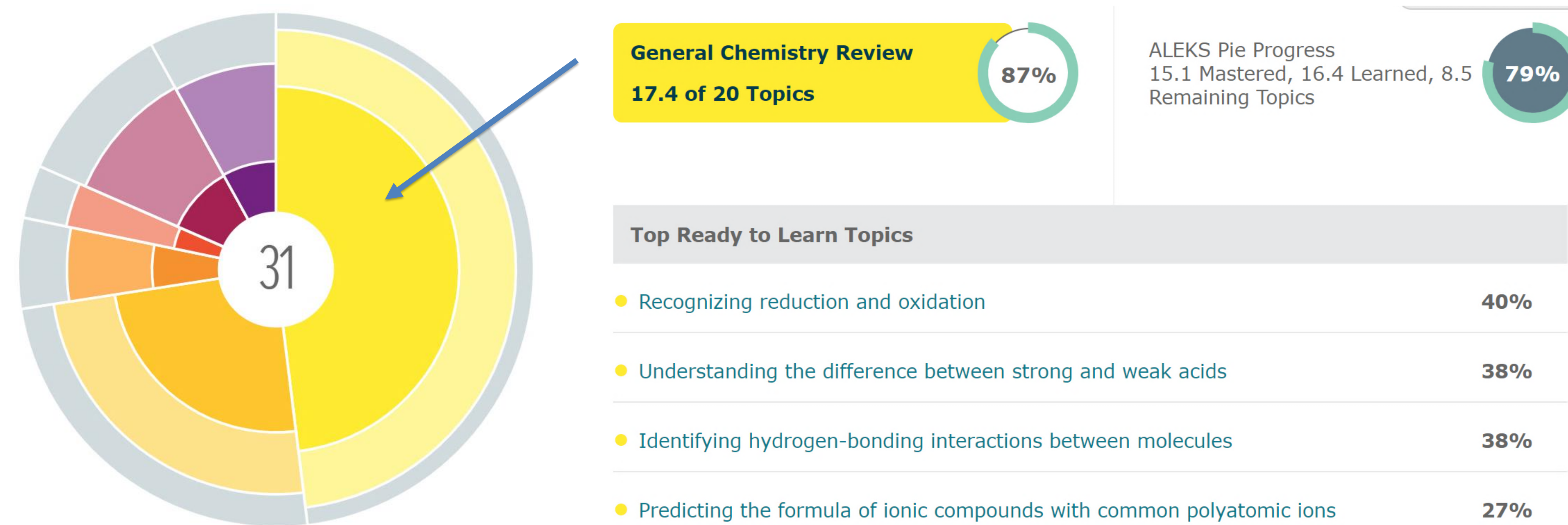
## Disclosure

The authors of this presentation do not have financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation. This research was determined not to be human research by the East Tennessee State University IRB.

## Methodology



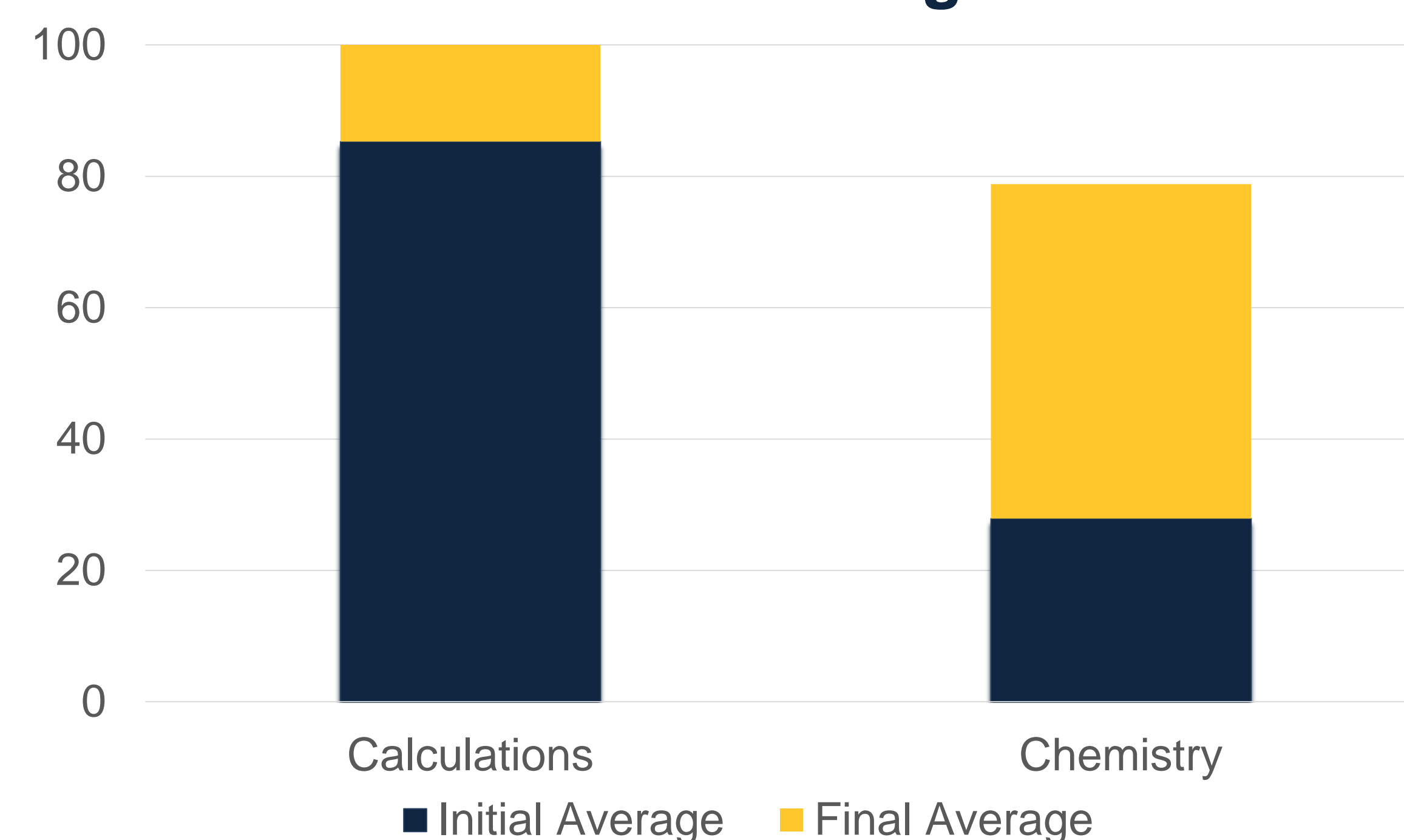
Students can track individual progress and faculty can track individual and course progress in real time:



## Results

- Initial achievement in calculations was much higher than in chemistry.
- All students met the 100% module completion goal in calculations.
- Students spent  $3.4 \pm 2$  hours working on Calculations modules and  $6.6 \pm 3.9$  hours working on Chemistry modules.
- Course averages were high ( $92.7 \pm 9.5\%$  in Calculations and  $85.6 \pm 13\%$  in Biochemistry) in supported courses.

### ALEKS Achievement Level vs. Course Average



## Discussion

- ALEKS is low stakes, self-paced, and customizable for specific course needs
- P1 students matriculated with more chemistry-related deficiencies versus mathematics-related deficiencies
- Incentive points for ALEKS completion were granted in respective P1 Fall classes
- Future utilization will involve pre-P1 availability of chemistry modules (summer)
- Evidence suggests that use of ALEKS has impacted student success in a positive way during the P1 curriculum

## References

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