

# Pharmaceutical Calculations Course Redesign using Quercus Data

Aleksandra Bjelajac Mejia, BS Pharm, PharmD, RPh  
Leslie Dan Faculty of Pharmacy, University of Toronto

## Introduction

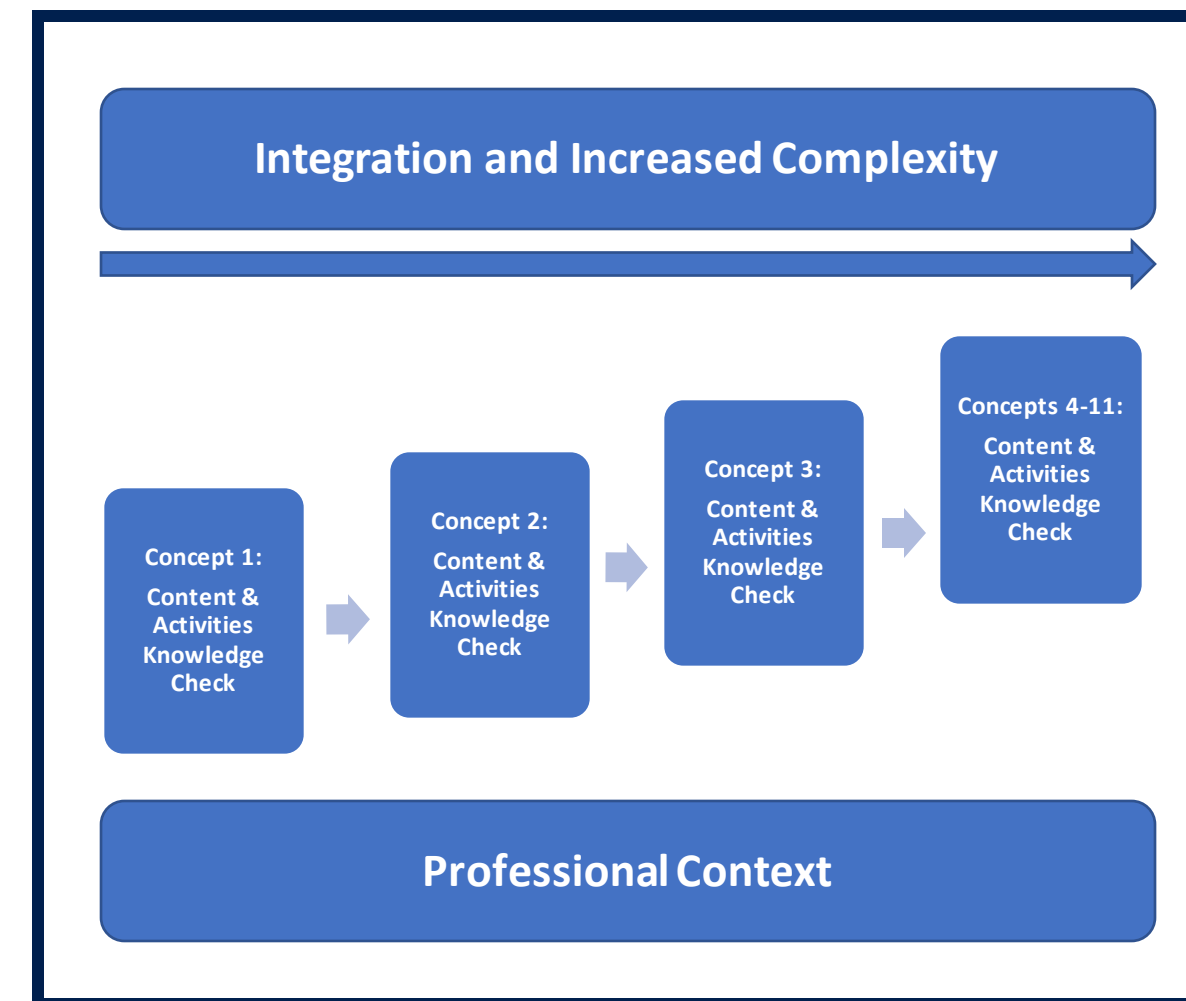
- The Pharmaceutical Calculations course is situated in the first term of the first year of a lock-step, entry-to-practice pharmacy program. Students enter the program with diverse educational and pharmacy related practice experiences. This course redesign uses data to inform changes to meet the varied abilities and learning needs of students while also introducing the pharmacy professional context.

## Methods

- Use quiz statistics and test item analysis reports data to inform instruction and design iteration.
- Use quiz results to check students' understanding in 'real-time' and for alignment with learning objectives & activities, and course outcomes.
- Explore what quiz statistics reveal about achievement of educational outcomes to support development of practice competencies.
- Use Fink's Integrated Course Design approach to create significant learning experiences.<sup>1</sup>

## Results

- A high number of students demonstrated active engagement in 'knowledge checks' in and out of class.
- Quiz statistics results informed 'real-time' adjustments to instruction to enhance student understanding of key concepts.
- Test item analysis revealed individual question difficulty and led to adjustments to test items and new test items to continue to enhance learning.
- Use of bulletin board feature identified need for comprehensive explanations to several key concept topic areas.



**Figure 1. D3:QA Data Sources- content page views, bulletin board activity, quiz statistics, and participation in “knowledge checks” to identify potential problem areas in learning**

## Acknowledgements

I wish to sincerely thank:

- Frank Fan for his generous instructional design advice and encouragement to submit this course redesign project proposal.
- Data-Driven Design : Quercus Analytics Team for their guidance and support during the project. This project is generously supported by the D3:QA educational grant.

## Discussion

- Analytic tools provide useful data and may help identify students in difficulty in time to proactively engage and guide the students.
- Analytic tools are helpful to inform timely adjustments to current and next course iterations.
- The learnings from this project will support the development of a hybrid pharmaceutical calculations course for the fall term 2021 using the integrated course design approach and the use of analytics tools.

## References

1. Fink, DL. Creating Significant Learning Experiences, Revised and Updated. An Integrated Approach to Designing College Courses. Jossey-Bass. 2013.