



## MEMORANDUM

**To:** Executive Committee of Faculty Council (February 1, 2022)  
Faculty Council (February 18, 2022)

**From:** Professor Evan Bentz  
Chair, Undergraduate Curriculum Committee

**Date:** January 24, 2022

**Re:** Major Curriculum Changes for the 2022-2023 Academic Year

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### REPORT CLASSIFICATION

This is a major policy matter that will be considered by the Executive Committee for endorsing and forwarding to Faculty Council for vote as a regular motion (requiring a simple majority of members present and voting to carry).

### SUMMARY

The Undergraduate Curriculum Committee is tasked with managing the curriculum change process for the Faculty. This report summarizes additional course changes proposed for the 2022-2023 academic year.

### PROCESS AND CONSULTATION

These changes have been reviewed and approved by the Undergraduate Curriculum Committee, which is comprised of faculty representatives from undergraduate programs; undergraduate student representatives; the Vice-Dean, Undergraduate Studies; The First Year Office; the Associate Dean, Cross-Disciplinary Programs; and the Registrar. The Committee meets regularly to review and approve proposed changes to the undergraduate curriculum. The impact of these changes on students in the relevant programs has been considered.

### RECOMMENDATION FOR COUNCIL

THAT the proposed curriculum changes for the 2022-2023 academic year, as described in Report 3711, be approved.

## PROPOSED CURRICULUM CHANGES

### 1. CHEMICAL ENGINEERING AND APPLIED CHEMISTRY

1.1. Create new course **CHE408H1**: Data Analytics for Prediction, Control, and Optimization of Chemical Processes Elective 3/1/0

- **Proposed Calendar Entry**: Provides an industry-oriented approach of data analytics for chemical process engineers, including data acquisition methods and data sources, exploratory data analysis and sensitivity analysis, data-based modelling for prediction, data-based modelling for monitoring and control, and data-based optimization.
- 3 hours lecture, 1 hour tutorial per week.
- Prerequisites: APS106, CHE223, CHE322, CHE324 or equivalent

1.2. Create new course **CHE504H1f: Laboratory V** as a Tech Elective 0/0/6

- **Proposed Calendar Entry**: Involves experimental investigation in the application of physical chemistry, organic chemistry, inorganic chemistry, chemical pilot scale-up, chemical separation, chemical purification, data acquisition, etc. in chemical production.
- 6 hours practical per week.
- **Proposed Course Summary**: This course involves the operation of pilot-scale equipment to investigate common chemical process problems. Experimental investigation Students need to apply and integrate core engineering concepts/principles including fluid statics/dynamics and mechanical systems, thermodynamics and phase equilibria, thermochemistry and kinetics, and separation techniques to solve common unit operation/chemical process issues. In addition, common process design software including Aspen Plus, Computational Fluid Dynamics, and Distributed Control Systems such as Delta-V, and Computer Aided Design are used for problem solving and scale-up design process. Students will work as teams to complete projects involving the use of bench and pilot scale equipment, and simulation programs. Course projects will continue developing student's experimental and design skills; communication skills; critical thinking, problem-solving, and analysis skills.
- Prerequisites: CHE204, CHE205, CHE304, CHE305 or equivalent

### 2. BIOMEDICAL ENGINEERING

2.1. Remove prerequisite from **BME331**: Physiological Control Systems

- Course no longer depends on content from CHE353H1 according to course instructor so prerequisite can be removed.