
Bridging the Gap & Supporting Students: Transition from High School to University Mathematics
Comblent l'écart et soutenir les étudiants : la transition de l'école secondaire aux mathématiques universitaires
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SHANNON EZZAT, Cape Breton University

Filling gaps in mathematical maturity in pre-service elementary school teachers

For many different reasons, students that predominantly take math courses designed for future elementary school teachers have large gaps in both mathematical skills and knowledge that one would expect that they would have picked up in secondary school and before. At the University of Winnipeg, students in these courses were predominantly first-year students who have not taken a university mathematics course before.

We will discuss some of the gaps these students have, the reasons students have these gaps, why it is important to fill these gaps, and some efforts undertaken in course design and focus in MATH-2903/2904 (Mathematics for Early and Middle Years Teachers I and II) at the University of Winnipeg over the course for 2016 to 2021. Also, we will discuss some lessons learned from teaching this suite of courses that have transformed my teaching in other first-year mathematics courses.

MELISSA HUGGAN, Mount Allison University

Asynchronous online foundational courses

Many students apply to university only to realize they are missing prerequisite courses to get into another course or program of interest. One way to bridge those gaps is to offer non-credit foundational courses in an asynchronous online setting. This talk will explore the challenges experienced in one such course as observed by the course instructor. We will examine the course structure, which aspects work well, and common challenges experienced by students throughout the term. A focus will be on discussing ideas for how to improve asynchronous online course delivery for foundational content to better help students make a smooth transition to university.

REBECCA MILLEY, Grenfell Campus, Memorial University of NL

From Remote to Flipped: Incorporating asynchronous content into your in-person class

Before the pandemic, some instructors were already recording videos for calculus, as part of a "flipped" teaching style, where students watched videos at home before class and then completed practice exercises during in-person lecture time. As we return to in-person lectures this fall, we can use the asynchronous content developed during the pandemic to transition to a flipped course format. This talk will present the key elements of a flipped calculus course developed in 2014, including at-home (videos, exercises, quizzes) and in-class (discussion and practice) components. Special attention will be paid to the context of in-coming first-year students, who have had three disrupted years of high school mathematics.

CATHERINE ROBERTS, College of the Holy Cross

Creating a Climate of Inclusion

Our college is enjoying and benefiting from increasing numbers of first-generation students and students of color. A visit to our campus by Dr. Uri Treisman inspired our faculty to do more to support these students in their transition from high school to college mathematics. This presentation will describe some of the direct and indirect actions our department is implementing to engage students in this important transition. The speaker will reflect on what she has learned from mentoring and teaching first-year students, many of whom have gone on to study mathematics. Better email for this topic: croberts@holycross.edu

ANDREW SKELTON, York University

Will Faculty Buy In and Will Students Care? Embedding Transition Content into the First-Year Classroom

The gold standard of transition programming is the First-Year Seminar, a credit course that teaches students university success strategies such as learning skills, study skills, numeracy skills, and life skills, but such courses are not common practice in Canada. An alternative delivery model for FYE programming is to integrate the content into the academic curriculum, but this comes with challenges such as buy-in and loss of efficacy.

What does it take for instructors to adopt these materials in their courses, what does it take for students to complete them, and can they still be effective?

From the student perspective, the benefit (skills improvement, academic success, and direct academic reward) must be balanced with the cost (time, effort, and motivation). From the faculty perspective, the benefit (retention and improved student outcomes) must be balanced with the cost (workload, motivation, perceived sacrifice of course content and resource cost).

We will present results of our project, in which learning modules were developed at a variety of engagement levels and formats and tested with a large 1200-student multi-section introductory calculus course over three years. We will present student outcomes data, survey data from both students and faculty, lessons learned and ideas for the future.

PANEL: ASMITA SODHI, MARIE MACDONALD, CHRIS BRYNE & ALYSSA SANKEY, Dalhousie and Cornell
Bridging the Gap Panel

“How can we bridge the knowledge gap and support students as they transition from high school to university?”

BILL WILLIAMS, Gonzaga High School