
RICHARD HOSHINO, Quest University Canada
Creating Mathematical Gateways

In this talk, I will share two programs pioneered by colleagues at my small liberal arts and sciences university.

The first initiative is our Math Foundation program, created by Glen Van Brummelen, where all incoming students take a Mathematics course that embodies a mode of inquiry rather than a specific set of content. Instead of a broad survey or service course, or a “gatekeeper” course such as Calculus I, our Foundation program includes offerings such as Spherical Trigonometry and Mathematical Problem-Solving. As a result of students starting their university mathematics education in this manner, we find great success in our ability to attract students to our subject, with many students choosing to take additional math courses, and even pursue graduate studies in mathematics.

The second initiative is our Quantitative Skills Program (Q Skills), to prepare students for an intensive undergraduate curriculum where quantitative reasoning is embedded into nearly every course. The Q Skills program, created by Chris Stewart, is divided into four strands called Number, Graphs, Algebra, and Measurement, and helps students work logically and effectively with numbers, to question quantitative information, and to analyze quantitative evidence. First-year students must complete a diagnostic for each individual strand, as many of our courses require completed strands as prerequisites to ensure that students are well-prepared. As a result of distinguishing mathematics from quantitative reasoning, first-year students discover that Q Skills serves as their “gateway” to interesting and challenging courses across the liberal arts, including upper-year courses in mathematics.