RICHARD HOSHINO, Quest University Canada
Inspiring Change Through Linear Algebra

Since February 2013, I have taught math at Quest University Canada, a small liberal arts and sciences university in Squamish, B.C. In this presentation, I'll share the vision and philosophy of my Linear Algebra course, which uses rich inquiry-driven problems to help students discover key concepts on their own (e.g. learning matrix inversion via codebreaking), and has students deliver in-class presentations to share the applications of linear algebra to create deeper engagement.

The biggest success of the course has been the students' final projects, where they must find some real-life problem that can be solved using Linear Algebra. Though none of these students are "math majors", some of these student projects have now been fully implemented: an Integer Program that assigns courses to professors to maximize preferences, as well as automated programs to produce 14-day schedules for a coffee shop in downtown Squamish (with 30 employees) and a trendy restaurant in downtown Victoria (with 25 employees).

I'll conclude by sharing how this inquiry-driven approach has allowed these undergraduates to engage more deeply with course content, where they are able to apply Linear Algebra to inspire change on the issues that matter to them.