Lisa Boyes
How do you turn $7,500 into $75,000? Apart from knowing how to multiply—as Professor Taras Gula of the School of Health Information Management certainly does—it took GBC to seed-fund Gula’s statistics-education project, and the Inukshuk Fund to leverage the initial investment by a factor of ten. As a result, Gula and colleagues at George Brown and York University are developing innovative math modules and online gaming to help teach statistics to those health science students who quake when they see “required” beside Introductory Statistics in their course curricula.

A graduate of the University of Waterloo in math with a statistics focus, Gula taught in the public system, at an alternative high school, before coming to George Brown. He also holds a Master’s in Education from the Ontario Institute of Education of the University of Toronto (OISE/UT). As a result of his experience and his review of the research, he’s learned a thing or two about how to teach math—and especially the thorn in many a student’s side, commonly called “sadistics.” Fundamentally, Gula has learned that “introductory statistics courses on their own are not a proper way to teach stats to non-mathematicians.” Research across disciplines shows that students think statistics course material is poorly presented and doesn’t motivate them to achieve depth of understanding.

Gula teaches introductory stats to non-mathematician students aplenty at George Brown: in nursing, psychology, health information management and other health sciences. Many of them, bright students, struggle with a subject that is at the heart of research and that students must now grasp in order to take on jobs in their field and contribute to evidence-based practice in healthcare. Says Gula, “From understanding why hand washing has become official public-health policy to being able to contribute to our understanding of how a widespread phenomenon like listeria sometimes becomes deadly—these are important concerns and analytical skills for many health science students: for undergraduates and practicing professionals who must upgrade.”

As a first step in making statistics accessible to students, with ARI support Gula developed his online “statcat” prototype (www.statcat.ca), a game-like form of learning that uses levels of skill and scenario-based case studies to help students visualize data, one of the most crucial yet difficult topics in intro stats courses. Gula surveyed his students on the usability of statcat, both form and content. Comments were largely favourable—“Some were even enthusiastic!” Gula says.
He then teamed up with colleagues and fellow introductory stats teachers, Professors Julie Gaudet in George Brown’s School of Nursing and Mina D. Singh in Nursing at York University, both to expand statcat to 100 scenarios and to develop 17 new online essential math modules to complement statcat. The interactive modules will target students at the outset of their intro stats courses at both institutions. Using the modules, students will be able to review and re-review, according to their own diverse schedules and needs, core topics in math and statistics that were taught in earlier grades, like arithmetic, basic algebra and probabilities. The Inukshuk grant (“inukshuk” is Inuit for “stone man who points the way”) is supporting the two-part development and expansion project over the next year.

Currently, statcat is freely available to anyone who goes to the website, just as the expanded version will be. Gula, Gaudet and Singh will also house the 17 new learning modules as a public website, hosted by George Brown, that anyone at all levels of the education system—students, teachers and professors—can use for teaching or learning.

Gula himself has already organized his intro stats course around the existing statcat scenarios. Meanwhile, the new learning modules will lead to an important applied-research project. Once they’re up and running, Gula wants to investigate whether they help students gain a positive appreciation for math and statistics; what the gaps are, if any, in what the modules teach; whether health science students will then be more successful in their introductory stats courses; and whether introductory stats curricula must change to reach students.

That research will need its own grant. You can be sure that Gula will aim to multiply or otherwise work math magic to enable him to advance the state of statistics curriculum and teaching for students.

George Brown College, with 30,000 full- and part-time students and more than 900 faculty in more than 150 programs, aims to be a top community college of choice for applied research investment by industry and other partners. Its applied research strengths include advanced engineering and microelectronics; nursing and the social sciences; health informatics; IT; and design and new media. George Brown is currently allied with nine other Ontario colleges in the Colleges Ontario Network for Industry Innovation, started with a $3.5m grant from the Ministry of Research and Innovation. CONII is building college capacity to bring research to the marketplace.