What is TLKT?
TLKT is designed to foster excellence in the areas of research, scholarship and creative expression. TLKT includes the areas of translation, transfer and teaching of knowledge, skills and/or attributes.

Over the past decade, there has been an increasing call for change in the way universities view and enact their teaching and research mandates, with identification of the need for a more accountable, scholarly and learner-centered approach to undergraduate and graduate education. In order to go beyond the discovery of knowledge and to produce significant, accountable, scholarly activity in knowledge transfer and translation, as well as in teaching and learning, new dimensions of scholarship have evolved. These new dimensions have been called the Scholarship of Teaching and Learning (SoTL) and the Scholarship of Knowledge Translation and Transfer (SoKTT).

SoTL is defined as scholarly inquiry into student learning, the goal of which is to improve teaching practice. A characteristic of SoTL is that the research findings are made public, through dissemination in scholarly journals, conference presentations, or other means. SoTL research aims to investigate the effectiveness of different teaching methods and strategies, using methods including observational research, quasi-experiments, case studies, and surveys and questionnaires (excerpted from Wikipedia). SoTL research can take place across any number of disciplines, although in the Department of Human Health & Nutritional Sciences, our research is focused primarily in the area of Biological Science education.

Knowledge Translation and Transfer (KTT) is defined as “the transformation of knowledge into use through synthesis, exchange, dissemination, dialogue, collaboration and brokering among researchers and research users” (Ontario Ministry of Agriculture, Food and Rural Affairs, 2012), with SoKTT being scholarly inquiry into this practice. The ultimate goal of SoKTT is to discover and investigate how to most effectively put knowledge into action in a particular situation. In the Department of Human Health & Nutritional Science, SoKTT seeks to promote and explore the many facets of knowledge mobilization and exchange that are required to effectively promote a healthy lifestyle and the practice of lifestyle medicine, with an emphasis on nutrition and physical activity.
What are we doing?

The following is a list of ongoing or recently completed projects by faculty in the TLKT Research Group.

Use of breakout groups as an active learning strategy in undergraduate education – Breakout groups are employed across a wide range of settings, and while they are likely widely used in undergraduate classrooms, the literature about their use in education is sparse. Our research has found that student perception of breakout groups may be overwhelmingly positive despite a large class size, and is influenced by student characteristics including gender and GPA. Future research will investigate using breakout groups across different academic levels and disciplines, and will seek to determine the optimal length and timing of breakout groups in education.

Use of nutrition and nutraceutical related case-based-learning modules in Biochemistry education – Despite its intricate links to nutrition, the traditional approach to teaching Biochemistry does not involve consideration of biochemical pathways in the context of diet, only as molecules. This research seeks to determine whether use of nutrition and nutraceutical related case-based-learning modules in Biochemistry education can facilitate a deep approach to learning, improve academic performance, and positively influence student perception of course quality.

Program on anatomy and physical activity, food and nutrition at a children’s museum. Two educational programs have been designed and delivered for school-aged children: (1) KiM: Kids in Motion: a Healthy Start (Grades 1-3) and (2) Kids in Motion: Follow your Senses; a Journey to Health (grades 4-6). Over 3,000 school children have come to the museum to participate in these programs. This year, there will be a museum outreach with the program. Currently review and revision is underway with the programs.

Blooming initiative – As professors, we strive to provide a deeper level of learning for our students through our course design. This requires a purposeful course design in order to incorporate higher order learning opportunities. And how would we know if we were successful? We have been applying a quantitative method of course assessment, using Blooms Taxonomy, in order to derive a course profile outlining the lower and higher order learning expectations within a course. This tool can provide the current learning expectations of a course which can then lead to purposeful design for higher order learning and deeper learning elements within a course. Applying this tool to our current and future course design will help ensure that we are delivering the types of learning that we think we are.
Use of a peer review software to improve scientific literacy in graduate and undergraduate education

We are implementing use of a web-based tool that allows for submission of written materials, anonymous peer evaluation, revision and correspondence with authors, as modeled after the process of scientific publishing, which allows students to gain exposure to the realities of an integral part of the scientific method. Research is being conducted to determine if use of peer review software improves writing skills and whether students at the undergraduate and graduate levels can act as effective peer reviewers.

Development and use of a mobile application for use as a pedagogical tool in Biochemistry and Nutrition education – We recently developed a mobile application called NutriBiochem that can be used as a tool for student’s to learn about the fundamental process of carbohydrate, lipid and protein metabolism, as well as the structures and properties of macro- and micronutrients. Research is currently being conducted to determine the educational impact of this application.

Development and use of an experiential lab in undergraduate Biochemistry to improve understanding of the scientific method – While labs have always been used to afford ‘hands-on’ experiences, the specific exercises used are oftentimes quite removed from students’ personal experiences. We are incorporating experiential learning into lab exercises in undergraduate biology and biochemistry classes in which they will collect, analyze, and present real human data. Research will determine whether these exercises improve student understanding of the scientific method.

Use of lecture capture in undergraduate education - Lecture capture provides students access to lecture content on a personal computing device at flexible times. Research conducted at the University of Guelph demonstrates that learning approach and gender are significant predictors of lecture capture behavior, performance, and/or attendance, and provides support for the use of lecture capture as a tool to improve academic performance. Future research will look at clarifying the relationship between lecture capture and attendance.

Creative expression and the science classroom - Should opportunities for creative expression be encouraged in the University science classroom? Should they occur in all 4 years of University science education? Or should this form of scholarship be available to science students only by taking electives in the fine arts and the humanities? This project will map, across the science courses at the University of Guelph, opportunities for creative expression in core and restricted elective courses on the University of Guelph campus.

Interdisciplinary Project in a First Year Biology course – The new ‘first year biology experience’ at the University of Guelph has, as one of its teaching and learning components, an interdisciplinary exploration of a ‘real world’ health/biology problem. An analysis of this group-based, ‘problem-framing’ experience, in terms of project design and delivery and student engagement and learning outcomes, will be published.

Research dissemination collaborative group called Agri-food for Healthy Aging (A-HA) - Through exploring linkages between agriculture, food and human health, A-HA aims to realize opportunities for Ontario’s agri-food and health sectors to improve the health and well-being of older adults through the innovative use of food. A-HA was among the first recipients of Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Agri-Food and Rural Link program designed to facilitate knowledge translation and transfer (KTT) activities at the University of Guelph.

Development of an evidence-based toolkit. – The Functional Foods for Healthy Aging Toolkit is intended to provide education and facilitate interaction between health professionals, particularly Registered Dietitians, and their older adult clients to help them navigate the expansion of functional foods in the marketplace. The toolkit is in plans for nation-wide dissemination through Dietitians of Canada to be available to every Registered Dietitian.
Opportunities

There are many opportunities for students at both the undergraduate and graduate level to engage in SoTL and SoKTT projects.

Undergraduate

*HK 4510/1/2:* HK 4510/1/0 is a research course designed to allow students to conduct independent scholarship in teaching, learning and knowledge transfer. Students will work on an individual project whose scope and design will be determined in consultation between the student and a faculty advisor. This course can be taken in one or two semesters, and is an upper-year course in the undergraduate curriculum.

*Volunteer:* Faculty with ongoing SoTL and SoKTT projects will have opportunities for undergraduate student research volunteers throughout the year. Volunteer opportunities may be posted within the Human Health & Nutritional Sciences departmental website.

Graduate

*Degree Programs:* The Department of Human Health & Nutritional Sciences offers programs of study leading to an MSc by thesis and an MSc by coursework and project, as well as doctoral programs leading to the PhD degree. A number of students have participated in SoTL or SoKTT projects as part of their degree research, most commonly through the MSc coursework and project program.

SoTL & KTT Related Publications


