Teaching Dossier

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Teaching Philosophy

As a first-generation, low-income student who grew up as a visible minority in Niagara Falls, a city whose economy centres on tourism and hospitality rather than professional or knowledge-based industries, I navigated every stage of my education largely without guidance. My parents, Vietnamese refugees who were denied access to formal education, could not even help me with basic arithmetic. Few of my peers came from households with post-secondary experience. I had no guidance to inform me what university mathematics would demand, what graduate school would require, or what employers would expect of a statistics graduate. I discovered each gap after I had already fallen into it.

The academic preparation itself was also uneven. Some of my early teachers openly expressed a distaste for mathematics, which left a lasting impression. While secondary school was an improvement, the Ontario mathematics curriculum left me underprepared for the rigour of university-level study. The gaps were not only socioeconomic. In a mathematics and statistics program that was male-dominated, I encountered, as early as my first year, subtle but unmistakable comments from classmates questioning my logical ability based on my gender.

In my first months as an undergraduate, I genuinely doubted whether I belonged. However, it was clear through assessments that I was above average and fully capable of completing such a degree. This experience made me instinctively pay close attention to who else in the room might be feeling the same way.

Each transition demanded more than I had been given, and I got through each one by working out, after the fact, what I should have known going in.

That pattern shaped how I responded to teaching opportunities when they arose. My engagement with classmates on Piazza, a classroom forum, during my undergraduate studies was recognised by faculty, leading to a teaching assistantship as early as my second year. I was subsequently rehired repeatedly across both the University of Toronto and McMaster University, including in a specialised capacity for STA304 (Sampling & Survey Design) and STA305 (Experimental Design), where I served as the sole facilitator for all final course projects to ensure consistency of evaluation across the full student cohort. Each of these roles was an opportunity to be the kind of educator I had not always had: someone who anticipated the gaps rather than leaving students to discover them alone.

The main instructor of these courses and I studied the impact of project-based learning, particularly as generative AI began to reshape how students approach coursework. This led to a co-authored publication in Teaching Statistics titled "Enhancing Statistics Education through Project-Based Learning (PBL) and the Emergence of ChatGPT", with a follow-up study currently under review. Across both works, students generally reported finding the course project valuable, though their attitudes toward generative AI have shifted more favourably over the study period.

Graduate school surfaced a different kind of gap. The theoretical foundations of statistics education are sound, but I became increasingly aware that students' needs and career contexts have shifted in ways the traditional statistics curriculum has not fully kept pace with. The modern statistician is expected to be comfortable with a range of computational tools alongside theoretical knowledge, yet many students complete undergraduate studies in statistics with limited confidence in their programming ability.

This became even clearer once I had the opportunity to contribute to `lme4`, a widely used open-source package for mixed-effects modelling with over 43 million downloads, used extensively in both academia and industry. Despite having completed a statistics degree, I found that my coursework had not prepared me adequately for the demands of the role; much of what I needed to learn required direct guidance from my supervisor rather than independent application of

prior knowledge. That experience was humbling, but it clarified to me that there is a serious gap between what undergraduate training delivers and what professional practice requires. Students who resemble me in background are least likely to have informal networks to help them bridge it.

Once I had the opportunity to teach undergraduate computational statistics in STA380H5, I reviewed the code commonly used in undergraduate textbooks and noticed that it prioritised readability over efficiency, which is appropriate for introducing concepts but leaves students underprepared for professional workflows. Drawing on what I had learned through that assistantship, I placed emphasis not only on writing correct code, but on writing code that reflects professional standards. This conviction informed my decision to replace the conventional written report with an `R`-intensive course project centred on package development and interactive application design using `R Shiny`, equipping students with skills applicable across a range of industry and academic contexts. The student experience of this project is discussed in detail in the Education Research and Publications section.

What connects these experiences is a specific sensitivity to the kinds of preparation that institutional education tends to assume rather than provide. Students from households without post-secondary experience are less likely to know what they do not know. Students who feel they do not belong are less likely to seek help early. Students who lack access to professional networks are less likely to understand what the next stage will demand of them. These are not failures of individual students; they are structural gaps, and they are gaps I have personally navigated at every level. I know what it costs to arrive somewhere underprepared, and I know that the right instructor, at the right moment, can change the trajectory entirely.

These experiences have led me to the following convictions:

- **Preparation over performance.** I want students to leave my courses better equipped than I was at their stage. Whether they are headed toward industry or graduate study, the transition should be challenging because growth is challenging. They should not struggle because they were left without the tools to succeed. This conviction is reflected directly in the course project I designed for STA380H5, in which students build both an `R` package and an `R` Shiny web application centred on a computational statistics topic of their choosing, such as Monte Carlo methods, bootstrapping, or numerical optimisation. Rather than submitting a conventional written report, students write production-quality code, practise version control through Git, and produce genuinely portfolio-worthy work, reflecting the expectations of both employers and graduate programs.
- **Theory and practice in tandem.** The theoretical foundations of statistics education are strong. At the same time, students increasingly enter a job market that demands practical fluency alongside theoretical knowledge. In STA380H5, I structured lectures around a theory-then-implementation format: concepts were introduced formally, then immediately demonstrated through live coding and debugging in class. Student evaluations reflected this directly, with several noting that the live coding sessions were among the most valuable parts of the course.
- **High expectations, fair assessment.** A course should be as difficult as its material demands. Assessments ought to reflect what was actually taught, and should be designed to evaluate genuine understanding rather than to catch students out. In STA380H5, I provided detailed practice tests and examinations written specifically for the course rather than recycling past materials. To be clear, this approach was not intended to lower the bar; course assessments consistently averaged approximately 65%, reflecting genuine academic rigour. The goal was to ensure that students who engaged seriously with the material were not disadvantaged by ambiguity about what they were expected to demonstrate.
- **Every student deserves access to support.** I want to be the kind of instructor I did not always have: approachable, genuinely invested in each student as a person, and deliberate

about ensuring that access to help is not itself a barrier to success. This conviction is shaped directly by my own experience of navigating academic spaces without guidance, feeling out of place as one of very few Vietnamese Canadian students in my elementary and high schools, and encountering comments early in my undergraduate studies that questioned my logical ability on the basis of my gender. I am aware that students carrying similar burdens are often the least likely to seek help, and the most likely to interpret structural disadvantage as personal failure.

In practice, this shapes both how I show up and how I design my courses. I schedule office hours using a when2meet poll at the start of term so that times reflect when students are actually available, rather than when it is most convenient for me. I make all course materials publicly available so that students who cannot afford supplementary resources are not disadvantaged. I maintain same-day response times on Piazza to provide a low-barrier alternative for students who are reluctant to ask questions in person. I write detailed assessment guides specifying exactly what will and will not be tested, so that students without access to informal study networks are not penalised for not knowing the unspoken rules of academic assessment. Remaining available to students after the semester ended, and being approached unsolicited by several who did, is something I take as meaningful evidence that this approach matters.

- **Equity-minded teaching.** My commitment to equity in the classroom is grounded in both lived experience and formal engagement with EDI work. As a graduate student representative on the Equity, Diversity, and Inclusion committee at McMaster University, I participated in discussions on incorporating EDI training for faculty. Prior to that, I served on the Diversity, Equity, and Inclusion committee at Epson Canada, where the focus was on creating space for minority employees to share their experiences. These roles have sharpened my understanding of how institutions can either reproduce or actively disrupt structural disadvantage.

  I am also conscious of what representation means in a statistics classroom. As a Vietnamese-Canadian woman from a low-income, first-generation background who has published research and taught at the university level, I am aware that my presence communicates something to students who have rarely seen someone like them in that role.

At its core, my philosophy is simple: every student deserves teaching that takes their success seriously.

Courses Taught

Lecturer

I served as sessional lecturer for STA380H5 (Computational Statistics) at the University of Toronto Mississauga during the Winter 2026 semester. I held full responsibility for all aspects of course delivery, including lecture preparation, tutorial materials, weekly quizzes, term tests, and the final examination.

Teaching Assistant — University of Toronto Mississauga

At UTM, teaching assistant responsibilities were broad in scope. I prepared and led tutorials for approximately 30 students per section, graded assessments for over 500 students in total, hosted office hours, invigilated examinations, and supported student discussion on Piazza. For STA304 and STA305, I additionally served as the sole grader for all final course projects, an arrangement made by the course instructor to ensure consistency of evaluation across the full student cohort.

Code	Title	Term(s)	Role
MAT136	Integral Calculus	Winter 2022	Full TA
STA107	Introduction to Probability & Modelling	Winter 2022	Full TA
STA256	Probability & Statistics I	Summer 2021, Fall 2021	Full TA
STA258	Statistics with Applied Probability	Winter 2022	Full TA
STA260	Probability & Statistics II	Winter 2022, Fall 2023, Summer 2024	Full TA
STA304	Sampling & Survey Design	Fall 2022, Fall 2023, Fall 2024	Full TA
STA305	Experimental Design	Winter 2023, Winter 2024, Winter 2025	Full TA

Teaching Assistant — McMaster University

At McMaster, teaching assistant roles were more specialised by function. Some appointments involved the full range of TA duties, while others were limited to grading only.

Code	Title	Term(s)	Role
STATS 2D03	Introduction to Probability	Fall 2024, Fall 2025	Full TA
MATH 1AA3	Calculus for Science II	Winter 2025	Full TA
MATH 1ZB3	Engineering Mathematics II-B	Winter 2025	Full TA
STATS 3A03	Applied Regression Analysis with SAS	Fall 2024	Grading only
STATS 3PG3	Probability and Games of Chance	Fall 2025	Grading only
MATH 1XX3	Calculus for Math and Stats II	Winter 2025	Grading only

Teaching Methodology and Curriculum Development

Computational Statistics Course Project Involving R Shiny

A central concern informing my course design is that statistics majors are routinely advertised as highly employable, but practical skills employers demand have expanded faster than curricula have adapted.

R implementation in coursework is sparse compared to the level of proficiency expected for employment. Furthermore, students themselves tend to graduate with limited confidence in their programming ability.

The rise of generative AI has exacerbated this issue. Students increasingly delegate writing, analysis, and interpretation to these tools, which means students are unable to develop competencies that project-based work is meant to build.

To address this, I designed a course project for Computational Statistics (STA380H5) in which students build both an R package and an R Shiny web application centred on a computational statistics topic. These methods include, but are not limited to Monte Carlo methods, bootstrapping, or numerical optimisation.

Rather than consuming pre-built interactive tools, the goal of the project is for students to construct the simulations themselves. I also mandated the use of GitHub, which allows developers to create, store, manage, and share their code, so students can be exposed to version control

systems, which are commonly employed in both academia and industry. This demands genuine fluency in R, familiarity with version control through Git, and a level of independent problem-solving that a conventional report-based statistical project does not require.

Students completed the project during the second half of the semester, after gaining familiarity with introductory computational statistics tools. Progress was structured through a series of checkpoints at which I provided detailed feedback to each group as needed. The timeline and checkpoints are outlined in Figure 1.

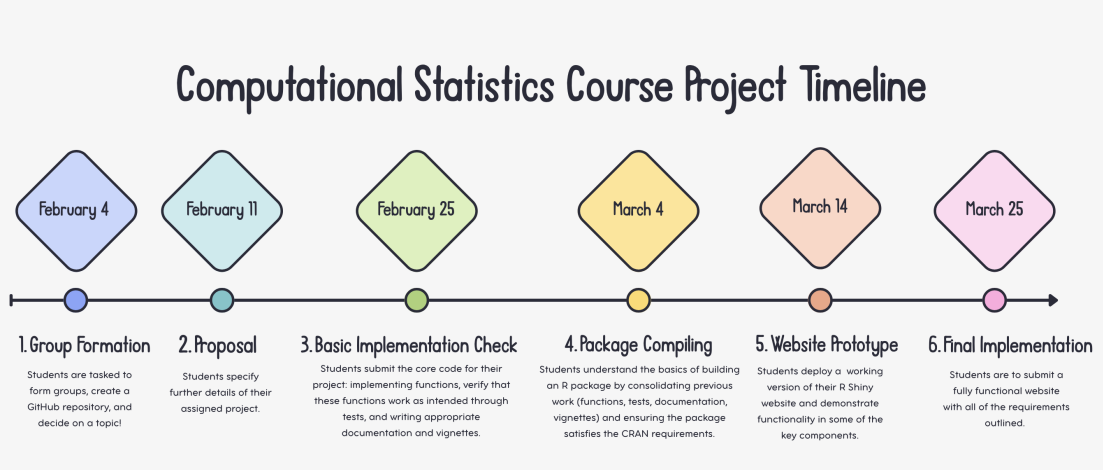

FIGURE 1: An overview of the checkpoints of the course project for “Computational Statistics" during the 2026 winter semester.

The project was also designed with the current job market in mind. With increased competition, independent, portfolio-worthy technical work is increasingly demanded from prospective employees, and this project is explicitly structured for students to showcase their technical abilities.

My motivation for this design is partly personal. During my master’s, I had the opportunity to study and later be a research assistant under a professor who developed widely-used R packages. Through that assistantship, I gained meaningful experience in R software development, and came to notice inefficiencies in code commonly used to teach undergraduate computational statistics. This experience shaped my belief that programming should be taught alongside statistical theory.

Given the niche technical skill set involved in the course project, which is experience with R package development, CRAN package submission, and R Shiny application design, it was infeasible to have a qualified teaching assistant with the requisite background to support and evaluate student work. I elected to grade all submissions myself, investing considerable time beyond standard instructional expectations to ensure students received substantive, technically informed feedback.

This initiative shows my commitment to challenge conventional approaches to statistics education and to providing students with a genuinely high-quality learning experience. Fixing the gap between what undergraduate statistics programs deliver and what employers and graduate programs expect requires instructors who are willing to go beyond the standard curriculum. My design, support, and evaluation of a project of this technical complexity is proof of my commitment.

This effort has resulted in a number of high-quality student projects. With students’ permission, a selection of these works is presented below:

1. Monte Carlo Simulation of a Hypothesis Test of Binomially Distributed Samples by Junyi

Hou, Siling Cheng, Feiyang Xue, Tianhong Shen, and Valerie Pan.

2. Monte Carlo Study of the Bias–Variance Tradeoff in Regression Models by Jizheng Huang, Kai Rui Zhu, Tianchen Xu, and Victor Jiang.
3. VaR calculator for Stock Portfolio through Monte Carlo and Geometric Brownian Motion by Jeffrey Huang and Sun Jia Wei.
4. Computing Empirical and Theoretical Autocorrelation of Time Series Models by Devesh Aggarwal, Daniel Cowley, Esteban Gonzalez, Arnav Nagzirkar, Khushal Patel, and Sohaib Sajid.
5. Monte Carlo Study of the Bias–Variance Tradeoff in k-NN by Jiachen Chen, Jintong Li, Yuxi Ren, and Yiwen Zhao.
6. Bootstrap Estimate of Boston Housing Data by Jiawei Cao, Clara Huang, Qi Wang, and Jimmy Yang Yang.
7. Time Series Model Fitting and Diagnostic Checks by Amin Amir, Kevaan Chirag Buch, Eshan Hussain, Kevin Joseph, and Will Wang.
8. Bootstrap Estimate of Reaction Time using the Nintendo Wii Balance Board by Tristan Copplestone and Jacob Gipp.

To gather structured evidence of the project's impact, I collaborated with my colleague Luai Al Labadi, who obtained ethics approval on my behalf given my sessional appointment, to deploy a survey during the final week of the semester. The survey was administered via Google Forms and aimed to capture students' impressions of the course project alongside their self-reported confidence in the skills the project was designed to develop. Students completed self-efficacy ratings for tools and techniques covered in the project, including `R`, `R Shiny`, and version control systems.

The survey data captures student confidence at the end of the semester rather than demonstrated outcomes after graduation, and I acknowledge that longer-term evidence of the project's impact remains to be gathered as students progress into the workforce and graduate study.

Nonetheless, student impressions of the project were largely positive. One student described the structure of the project as follows:

> *I think the execution was perfect.*
> *(1) There was immediate feedback which I really do appreciate. The professor gave a detailed breakdown on whats working and room for improvement.*
> *(2) The course website was also very helpful. It gave clear and concise instructions on what is expected from our project.*
> *(3) I think breaking projects down into different phases is more manageable because it forces the students to get the work down and not leave everything to the last minute."*

Self-efficacy was assessed using Likert scale items ranging from 1 (strongly disagree) to 7 (strongly agree). As shown in Table 1, students reported mean ratings above the scale midpoint of 4 for all items, indicating that on average they at least moderately agreed with statements reflecting the core goals of the project.

A full analysis of the survey data, including additional qualitative feedback, is forthcoming in a manuscript currently under review; see the Education Research and Publications section for brief details.

Commitment to Open and Accessible Education

Course materials for the course I have instructed are made publicly available through a dedicated course website (access here). I was inspired by seeing other instructors from all across the world

Item	n	Mean	SD	Median	IQR
(SE 1) I am confident in my programming ability in R.	83	5.2	1.2	5	1.5
(SE 2) I feel comfortable working with external R packages, such as R Shiny.	82	4.8	1.4	5	2.0
(SE 3) I feel comfortable writing tests and documentation in R.	83	4.9	1.4	5	2.0
(SE 4) I feel comfortable using version control systems effectively, such as Git.	83	5.5	1.6	6	3.0

Table 1: Student self-efficacy ratings on skills targeted by the course project, measured on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Response counts vary across items, as some students selected "I don't know what this is" for technologies they were unfamiliar with.

make their course webpage publicly available, allowing students outside the formal course to audit the content independently. This also aligns with my belief that education should be open and free.

Through this course website, you may access examples of my course materials, including lecture slides and the full details of the course project elaborated in the previous section.

Transparent and Student-Centred Assessment Design

A recurring source of anxiety in university-level statistics courses is the fear that assessments are adversarial. My assessment philosophy is explicitly opposed to this. For every quiz, term test, and final examination in the course, I publish a written guide specifying exactly what will and will not be tested. These exclusions are specific and reasoned: students are told, for instance, that they will not be asked to derive a proof relying heavily on analysis as it is not a pre-requisite for the course, and that convolutions will be supplied on the formula sheet rather than memorized.

Rather than directing students vaguely to "review the material," I rank preparation activities in priority order for each assessment. I also explain in detail how the practice problems were constructed: which textbook sources were consulted, which distribution families were used, and what logic guided the problem selection. The intent is that students can then generate their own practice problems using the same reasoning, prioritizing metacognitive instruction: teaching students how to study, not merely what to study.

To support genuine preparation, I provide two practice versions of each term test and the final examination at comparable difficulty, along with formula sheets. Solutions are not provided to encourage students to work on the practice tests independently, ask questions of teaching staff, and collaborate with each other. The formula sheet policy was deliberately changed across the semester to reflect the course content at the time and the needs of the students. Term Test 1 is supported by a complete formula sheet including R code. Term Test 2 uses a reduced sheet, reflecting increased expected fluency. For the final examination, students produce their own R-only formula sheet: one page, double-sided, restricted to valid R code and inline comments; mathematical notation and written algorithms are prohibited.

This level of support does not make the course easy. Term test and final examination averages have consistently sat around 65%, consistent with historical averages for the course. The goal of transparency is to ensure that students who invest seriously in the material are not disadvantaged by ambiguity about what they are expected to demonstrate, and that assessment results reflect genuine understanding of the content.

Original Course Materials, Lecture Design, and Instructor Accessibility

Every assessment in the course (quizzes, term tests, and the final examination) consists of mostly original problems written by me. I do not source questions directly from the assigned

textbook. Writing original assessments is considerably more labour-intensive than adapting existing exercises, but it ensures that problems test exactly the concepts covered in the course and do so at the appropriate level of difficulty.

The same principle applies to the worked examples embedded throughout the lecture slides. Although I have drawn on the assigned textbook and the course materials of the previous instructor, I have hand-selected and constructed additional examples designed to make the target concept as visible as possible and to connect the material to contexts students are likely to encounter later. For instance, I included problems involving conditional expectations because they arise frequently in graduate-level statistical work, and because they offer a clear illustration of when Monte Carlo methods provide practical advantages over closed-form derivation.

All lecture materials are typeset in LaTeX and made available in two versions for every unit. A student version without solutions is posted before the relevant lectures to encourage active engagement; a complete solution version is posted once the unit is finished. The slides follow a consistent visual system throughout the course, with colour-coded theorem boxes, clearly marked derivations, and flagged enrichment material, so that students can navigate a large set of slides without confusion about what role each element plays.

I also take seriously the responsibility of being accessible outside the classroom. Piazza is used for asynchronous questions throughout the semester, and I respond to student queries promptly. Office hours are scheduled at the start of term using a when2meet poll so that times reflect when students are actually available rather than when it is most convenient for me. I am aware that delays in receiving answers can cause unnecessary anxiety, particularly around course logistics, and I make a deliberate effort to minimize this. Lectures are also recorded and made available for students who are unable to attend in person due to illness or other circumstances; I encourage live attendance where possible, as recordings are intended as a supplement rather than a substitute for the lecture itself.

Evidence of Teaching Effectiveness

As I am new to lecturing, I have presented samples from both my recent experience as a sessional instructor as well as some recent samples from when I was a graduate teaching assistant at McMaster as evidence that I have been consistently involved and motivated to provide students with a high-quality education.

Sessional Lecturer

Course Evaluations

The evidence presented in this section reflects an approach rooted directly in the convictions described in my teaching philosophy. Several students pointed to the live coding sessions as a valuable part of the course, which reflects my belief that theory and practice should be taught together. The accessibility structures I built into the course, including same-day Piazza responses, extended office hours before every assessment, and practice materials written specifically for the course, appear repeatedly in both formal evaluations and unsolicited correspondence. Perhaps most meaningfully, several students wrote after the semester had ended with no academic incentive to do so, something I did not expect but appreciate greatly.

The feedback below is drawn from formal course evaluations for STA380H5 (Computational Statistics, Winter 2026) where there were 31 respondents from 96 invited; 32% response rate. Scores are reported on a 1–5 scale. Course scores are compared against departmental and divisional means where available.

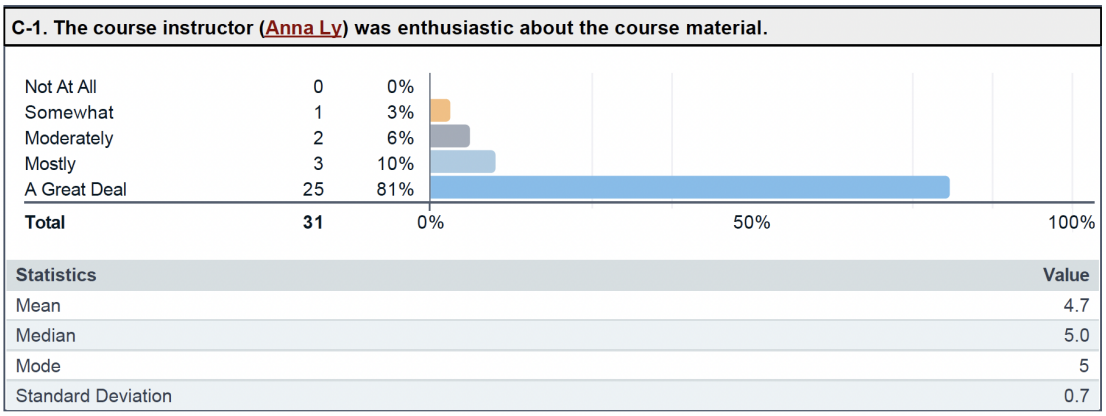

FIGURE 2: Response distribution for C-1: "The course instructor was enthusiastic about the course material." 81% of respondents selected "A Great Deal," with a mean of 4.7 and a median of 5.0 ($n = 31$).

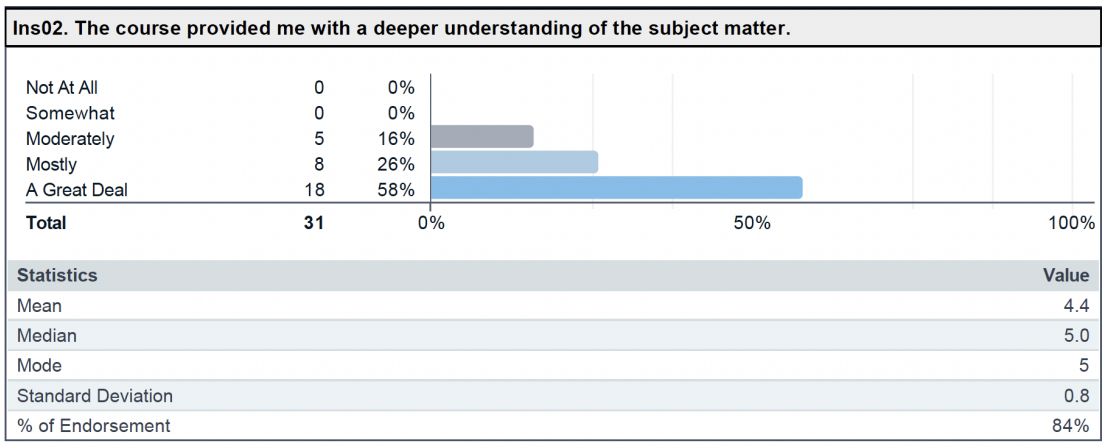

FIGURE 3: Response distribution for Ins02: "The course provided me with a deeper understanding of the subject matter." 58% selected "A Great Deal," with an endorsement rate of 84%, a mean of 4.4, and a median of 5.0 ($n = 31$).

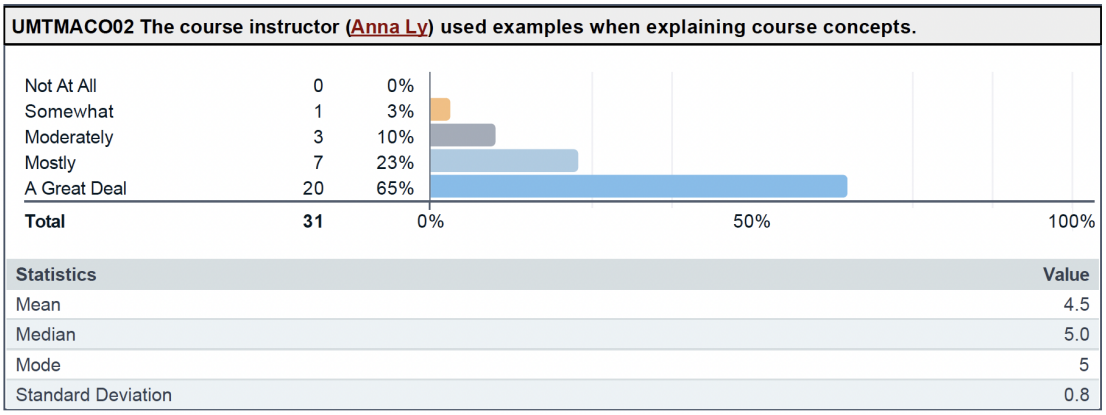

FIGURE 4: Response distribution for UMTMACO02: "The course instructor used examples when explaining course concepts." 65% selected "A Great Deal," with a mean of 4.5 and a median of 5.0 ($n = 31$).

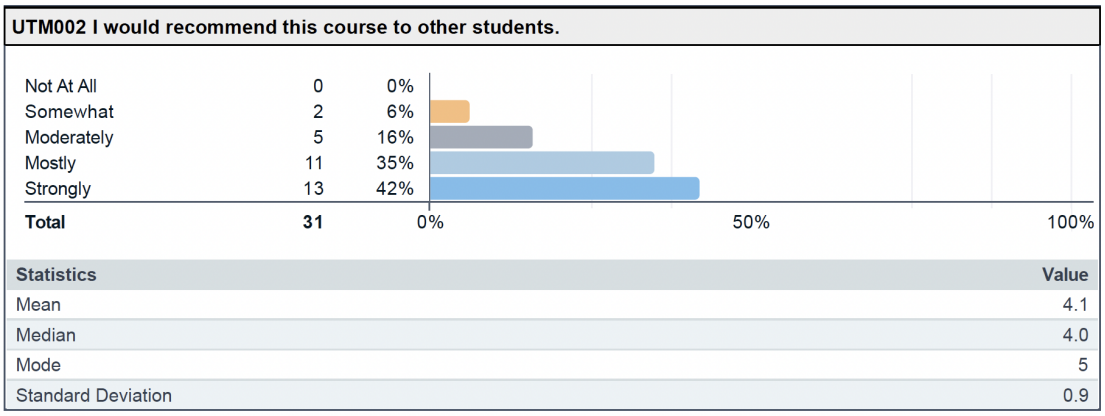

FIGURE 5: Response distribution for UTM002: "I would recommend this course to other students." 42% selected "Strongly," with a mean of 4.1 and a median of 4.0 ($n = 31$).

Institutional Items

Item	Course Mean	Dept Mean	Div Mean	Course Median	Dept Median	Div Median
Ins01. I found the course intellectually stimulating.	4.2	3.9	4.0	4.0	4.0	4.0
Ins02. The course provided me with a deeper understanding of the subject matter.	4.4	3.9	4.1	5.0	4.0	4.0
Ins03. The instructor created an atmosphere conducive to my learning.	4.4	4.0	4.2	5.0	4.0	5.0
Ins04. Course projects, assignments, tests, and/or exams improved my understanding.	4.4	3.8	4.0	5.0	4.0	4.0
Ins05. Course projects, assignments, tests and/or exams provided opportunity to demonstrate understanding.	4.4	3.8	4.0	5.0	4.0	4.0
Ins06. Overall, the quality of my learning experience in this course was:	4.2	3.6	3.8	5.0	4.0	4.0

Divisional Items

Item	Course Mean	Dept Mean	Div Mean	Course Median	Dept Median	Div Median
UTM002. I would recommend this course to other students.	4.1	3.4	3.7	4.0	4.0	4.0
UTM003. The course inspired me to learn more about the subject matter.	4.1	3.4	3.7	4.0	4.0	4.0

Departmental Items

Item	Course Mean	Dept Mean	Course Median	Dept Median
UMTMACO01. The instructor suggested specific ways to help understand course concepts.	4.4	3.9	5.0	4.0
UMTMACO02. The instructor used examples when explaining course concepts.	4.5	4.1	5.0	5.0

Several students highlighted the value of pairing theory with practical demonstration, which was an approach that was central to my course design:

> *"The quality of instruction in the course was excellent. Lectures were clearly planned well ahead of time and structured in a manner that emphasized a theory / practical example parallel that personally worked very well for me. The professor Anna Ly also appeared to be very passionate about the material and student's learning, and made sure that topics were demonstrated in a manner that leveraged her past experiences as well, to reflect not only the core concepts, but how the concepts are related to one another, and how they appear outside of academic contexts."*

> *"Excellent lecturer! Wasn't sure what to expect since she hasn't been an instructor/professor before, but Anna does a great job defining concepts and going through examples. I think the live coding/ de–bugging in lecture is really helpful to see. I also really appreciate how she will bring up several different perspectives on the statistical techniques we are learning, opening us up to conversations happening in this field in academia and in the real world. 10/10."*

A recurring theme students mentioned was that I taught difficult material well, which I prioritized given my own experiences as a student encountering challenging content for the first time:

> *"She taught the subject pretty well. I would say better then most of the professors in the statistics department because she understands that the material is hard to learn at first but then with good explanations and good visualizations, it would make the learning experience a whole lot better."*

> *"Anna explained difficult concepts very well and made the content interesting. There were many practice examples in the lecture content and she went through everything step-by-step. Through Anna's lectures you could tell she was very passionate about the content and making sure each student understood and was having a good experience in the course."*

Students also responded positively to the course project and the broader emphasis on practical, transferable skills:

> *"The overall instruction was amazing. Anna is very well prepared before coming to teach in class and she is very knowledgeable. She always kept meaningful office hours where students were able to grasps computational R concepts very easily. I personally have learned more than any course I've taken in UTM through Anna's teaching style and I would really recommend whoever reads this to let her teach more often. She has truly inspired me to become a better and productive person and the assignment that we were given was very meaningful. I learned lots of concepts that were used in class in R coding and also has taught us extra material on top on her own. Overall 10/10"*

> *"Anna Ly is the best statistics professor I have had at UTM. She clearly puts a great deal of effort into her teaching, and that effort shows in every part of the course. She consistently made sure we understood the material deeply, not just enough to complete assignments or exams. I really appreciated how much she cared about her students' learning and how intentional she was in explaining concepts clearly and thoroughly. Her dedication, organization, and genuine support created a very positive learning experience. She set a very high standard for instruction, and I think her teaching practices should absolutely be continued."*

Finally, several students noted the accessibility and responsiveness of the course's support structures:

> *"The course website was highly detailed with lots of helpful resources (practice tests, ect). Both Anna and the TA Ting were quick and detailed when replying to questions on Piazza. Anna is very approachable when*

> *asking questions :)"*

SAMPLE OF PIAZZA POSTS

At the end of the semester, I asked students to fill out course evaluations as I believed it to be important for my career in education. I was transparent about the process of being a sessional lecturer and the role that course evaluations play in informing future teaching appointments. I emphasised that honest and critical feedback was equally welcome. The screenshots below capture an unsolicited response from students on Piazza, the course discussion forum, in which classmates independently encouraged one another to complete the evaluations and offered their own assessments of the course unprompted.

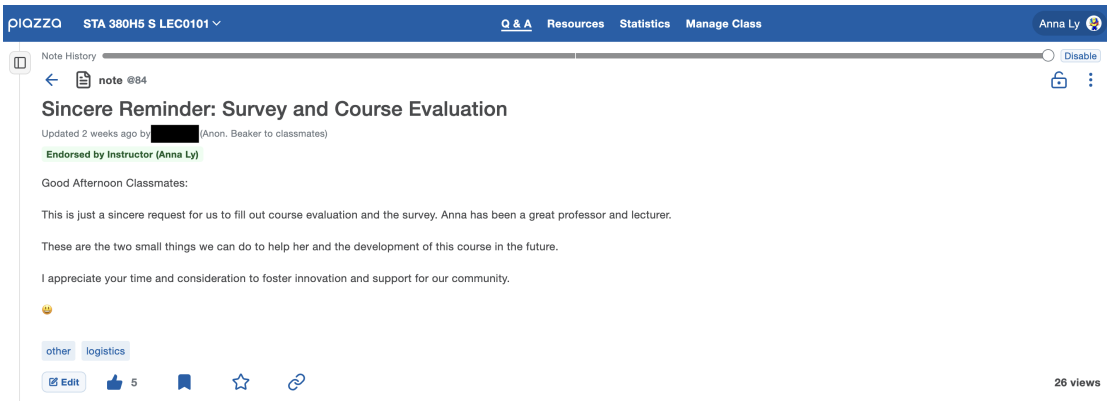

FIGURE 6: An example of a student encouraging others to fill out course evaluations.

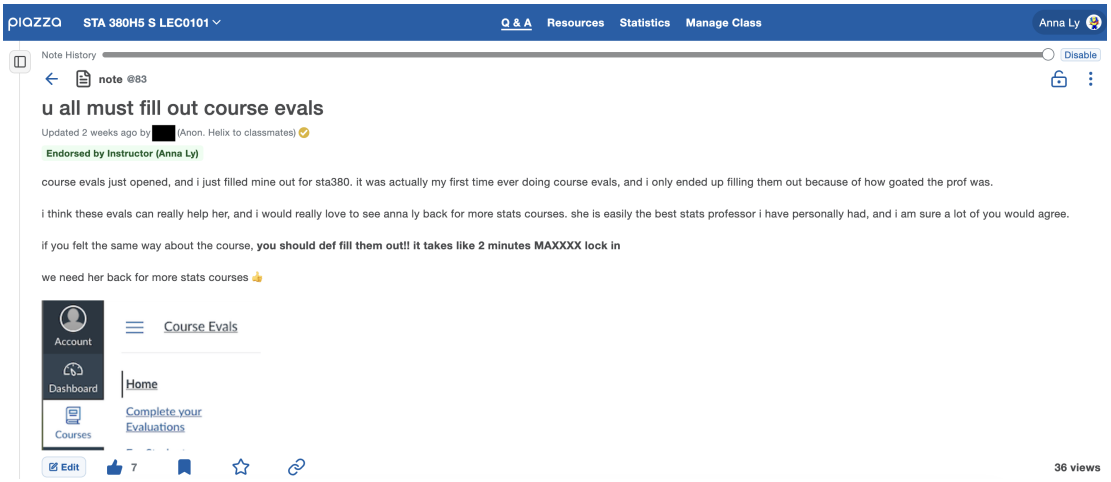

FIGURE 7: Another example where a student complimenting my teaching ability and persuading others to fill out course evaluations.

SAMPLE OF UNSOLICITED EMAILS

For these unsolicited emails, I have received explicit permission from the students. Some personal information from the emails has been redacted.

Student: Jingyue Xu

> *Hi Prof. Anna,*
>
> *I just want to say thank you for the whole semester. You are genuinely a wonderful professor, and I hope that I get the chance to take more courses with you in the future! Thanks for the quick reply on piazza, detailed*

> *notes and recordings, rigorous but fun concepts… And as promised, I got everyone I know to fill out the questionnaire.*
>
> *Sorry for having a fever yesterday. I tried my best on the final, but it didn't turn out as well as I had hoped. However, it's a really beautiful course, and thank you for letting us bring a cheat sheet so we could focus on the concepts themselves. Also, thank you for the group project. It was useful, applicable, and I learned a lot from working with others. (And sorry for the late reply—yes, feel free to share our project!).*
>
> *Thank you again to you and the whole STA380 faculty for everything. Hope to see you around!*
>
> *Lots of gratitude, Sage (Jingyue Xu)*

Student: Ayush Sharma

> *Hello Anna!*
>
> *I just wanted to let you know that it was a really great semester with you. I really enjoyed learning each topic we went over in class. I really like the lecture slides, as well as the rcodes for each slides based on each unit, and I really like the practice term tests and practice final exams you have made, specifically for actual term tests or final exam, as it gives us a clear idea of the number of questions and type of questions there will be. The way you provide us practice tests and exams, especially the ones you created specifically for actual tests or exams and not past tests or exam, I think other instructors should do the same exact thing like you are doing. They were the best materials you have made, especially for tests and exams, as you put so much effort into making lectures slides, rcodes, practice tests/exams, just to give us a better understanding of theorems, proofs, formulas, etc. and even clarifying from them if we were in doubt and correcting us if we made a mistake while doing the practice tests, exams, tutorials, lecture questions, etc. I just want to say, thank you so much for your help and support for this course and making this course fun and clear, especially with learning rcodes, even though I took STA258 last winter in which I was already learning rcoding, lol. I also want to thank you for hosting 3-hour office hour sessions before every test and exam so we could talk about if we need any help or clarifications.*
>
> *I just want to say, all the best for fall 2026 term and have the best summer, Anna!*
>
> *Ayush Sharma*

Teaching Assistant

As a teaching assistant, formal course evaluations are directed primarily to the course instructor of record rather than to individual teaching staff. On the occasions where students have commented on my contributions directly, the feedback has been consistent. Two such examples are presented below.

Course Evaluations

The following course evaluation was when I was a teaching assistant for an introductory probability course at McMaster during fall 2025:

> *I would also like to give special acknowledgement to Anna Ly. While I was not in her tutorial section, she did sub in for my TA for a tutorial session and Dr Paguyo for a lecture when both were away at conferences, and did host the midterm 2 review session. While my experience with her was limited, she is an enthusiastic and competent educator. I do not know if she intends to pursue teaching after finishing grad school, but she definitely has promise as an educator*

Sample of Unsolicited Emails

This email I received randomly while I was still a graduate student at McMaster:
Student's identity is kept anonymous upon request.

> *Greetings Anna.*
>
> *Hope you are doing well.*
>
> *My name is [REDACTED]. I am a stats student at UTM. I took sta260 with prof Luai over summer 2024, and sta304 in fall 2024. I used to attend all the tutorials for sta260 lol.*
>
> *I hope your graduate studies are going well at McMaster(you told me that you got into stats thesis graduate program at McMaster).*
>
> *I debated over the past few months whether or not I should bother you with an email(after sta304 ended), as I am not in any course you are TAing. Please ignore this if this email is an inconvenience.*
>
> *I just wished to convey my respect for your academic knowledge, TAship, and achievement. I recently visited the sta260 page on Quercus. It made me want to thank you again for your efforts to teach. Your in-depth explaination of concepts in tutorials make students like me learn difficult concepts easily.*
>
> *TLDR: thank you very much.*
>
> *Yours sincerely, [REDACTED]*

Education Research and Publications

My entry into education research began as early as the second year of my undergraduate studies at UTM. The computing education research group is particularly active, and as a statistics student, I was brought on to contribute statistical analysis and data visualisation to ongoing projects. This led to several publications in computing education.

More recently, I have involved myself in statistics education, where research at UTM is newer but growing. Both of my statistics education publications came directly from courses I was involved in teaching. The Project-Based Learning paper arose from STA305 (Experimental Design), a course I served as teaching assistant for three consecutive years; the `R Shiny` paper examines student experiences in STA380H5 (Computational Statistics), the course I designed and instructed. In both cases, questions I encountered while teaching motivated the research.

Statistics Education

The following work analyses students' attitudes towards project based learning and how useful they found AI tools conducted between 2023 and 2024 in courses in "Experimental Design" and "Survey, Sampling, and Observational Data". Students generally found projects to be useful for their learning, and their impressions of generative AI were mixed.

- Al Labadi, Luai, and **Anna Ly**. "Enhancing statistics education through Project-Based Learning (PBL) and the emergence of ChatGPT." *Teaching Statistics* 47, no. 3 (2025): 200–218. https://doi.org/10.1111/test.12405

We extended the above study in the following year by examining how the rapid advancement of generative AI has continued to shape students' academic practices, both in writing and in code generation. The study also introduces a new pedagogical tool for Experimental Design in which students apply experimental design principles to simulated populations as a viable alternative to human-based experiments, facilitated through the Islands platform. A secondary aim is to document how students' perceptions of AI have evolved since our earlier study.

- Al Labadi, Luai, **Anna Ly**, and Snezhana Kirusheva. "Student perceptions of AI and virtual populations in a project-based experimental design course." *Teaching Statistics* (2026): 1–16. https://doi.org/10.1002/test.70043

Works Under Review

This work under review is a contribution I led, motivated by the experiences described in my Teaching Methodology section. Having completed graduate coursework with a substantial computational component, I became convinced that students benefit from exposure to the full lifecycle of `R` package development alongside the ability to build interactive `R Shiny` applications, both of which are increasingly expected in industry and research settings. I incorporated such a project into STA380H5 (Computational Statistics) and this paper examines students' experiences with that project format, including their engagement with and perceptions of AI tools throughout the process.

- Al Labadi, Luai, and **Anna Ly**. "Students' Experiences with R Shiny Development and AI Tools in Undergraduate Computational Statistics" *Currently under review*.

Computing Education

During my undergraduate studies at UTM, I contributed statistical analysis to several research projects within the computing education group.

- **Ly, Anna**, John Edwards, Michael Liut, and Andrew Petersen. "Revisiting syntax exercises in CS1." *Proceedings of the 22nd Annual Conference on Information Technology Education*, pp. 9–14. 2021. https://doi.org/10.1145/3450329.3476855
- **Ly, Anna**, Jack Parkinson, Quintin Cutts, Michael Liut, and Andrew Petersen. "Spatial skills and demographic factors in CS1." *Proceedings of the 21st Koli Calling International Conference on Computing Education Research*, pp. 1–10. 2021. https://doi.org/10.1145/3488042.3488049
- Zavaleta Bernuy, Angela, **Anna Ly**, Brian Harrington, Michael Liut, Andrew Petersen, Sadia Sharmin, and Lisa Zhang. "Additional evidence for the prevalence of the impostor phenomenon in computing." *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education — Volume 1*, pp. 654–660. 2022. https://doi.org/10.1145/3478431.3499282
- Zavaleta Bernuy, Angela, **Anna Ly**, Brian Harrington, Michael Liut, Sadia Sharmin, Lisa Zhang, and Andrew Petersen. "'I Am Not Enough': Impostor Phenomenon Experiences of University Students." *Proceedings of the 2023 Conference on Innovation and Technology in Computer Science Education V. 1*, pp. 313–319. 2023. https://doi.org/10.1145/3587102.3588779
- Liut, Michael, **Anna Ly**, Jessica Jia-Ni Xu, Justice Banson, Paul Vrbik, and Caroline D. Hardin. "'I Didn't Know': Examining Student Understanding of Academic Dishonesty in Computer Science." *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1*, pp. 757–763. 2024. https://doi.org/10.1145/3626252.3630753
- **Ly, Anna**, Tingting Zhu, and Andrew Petersen. "Evaluating Storytelling Videos Using YouTube Analytics." *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2*, pp. 1730–1731. 2024. https://doi.org/10.1145/3626253.3635503
- Zhu, Tingting, Rutwa Engineer, Xaria Prempeh, **Anna Ly**, Michelle Craig, and Andrew Petersen. "Comparing physical analogue and traditional videos for learning and emotional engagement." *Discover Education* 4, no. 1 (2025): 71. https://doi.org/10.1007/s44217-025-00454-1

Professional Development

Ongoing engagement with the statistics education community is essential to my growth as an educator. I have attended and presented at conferences to stay up to date with recent pedagogical research, exchange ideas with practitioners across institutions, and situate my own teaching within broader conversations about the discipline.

I have participated in four conferences at the intersection of statistics and statistics education.

1. In July 2023, I presented a poster at the International Association for Statistical Education (IASE) Satellite Conference, titled *Thinking Beyond Numbers: Statistical Perceptions of Communicating Statistics Through the Arts*.
2. The following month, I served as a panelist at the Joint Statistical Meetings (JSM) in a session on *Pedagogical Perspectives on Teaching and Communicating Statistical Sciences Through the Arts*. Both contributions reflect my interest in broadening how statistics is communicated and taught, particularly through creative and interdisciplinary approaches that may resonate with students who do not see themselves as traditional quantitative learners.
3. In December 2024, I attended the Incorporating Technologies in Teaching Mathematics: Conference Honoring Ada Lovelace's Birthday at the Fields Institute. There, my collaborator Luai Al Labadi presented our joint work on project-based learning and generative AI in statistics education. Beyond our own contribution, I was exposed to how colleagues across institutions are rethinking pedagogy in response to artificial intelligence. This exposure prompted reflection on my own teaching practice.
4. In June 2026, I presented a poster at the Statistical Society of Canada (SSC) Annual Meeting, titled *Pitman Closeness of Maximum Likelihood Estimators under Type-II Hybrid Censoring*. This poster presented results from my master's thesis, examining the Pitman closeness criterion as a method for comparing maximum likelihood estimators of the scale parameter for exponentially distributed lifetimes under Type-II hybrid censoring schemes.

Community Engagement

I have delivered talks to the UTM Statistics Club on two topics of practical relevance to undergraduate students: effective `R` programming practices and navigating the graduate school application process. These sessions drew directly on my own experiences to offer guidance that is rarely addressed formally in undergraduate programs.

I also served as a teaching assistant for Math Circles, an after-school enrichment program for secondary school students run at UTM. My role involved preparing problem sets and supporting students as they worked through competition-style problems and mathematical puzzles, with a focus on the style of problems featured in the University of Waterloo mathematics competitions.

Occasionally, the sessions introduced foundational concepts not typically covered in the Ontario secondary curriculum, including elementary algebra, set theory, and introductory statistics. This experience was meaningful to me personally, as it reflected the kind of rigorous early mathematics education I would have benefited from myself.

I also volunteered at the Statistical Society of Canada Annual Meeting, hosted at McMaster University in 2026. My responsibilities included registration and on-site IT support. While the role was administrative, it was an opportunity to be present at and contribute to the national statistics community.

Beyond direct teaching activities, I have contributed formally to equity and inclusion efforts at the institutional level. As a graduate student representative on the Equity, Diversity, and Inclusion committee at McMaster University, I participated in discussions on incorporating EDI training for faculty. Prior to that, I served on the Diversity, Equity, and Inclusion committee at Epson Canada

during a co-operative education placement, where the focus was on creating space for minority employees to share their experiences. While neither role was directly pedagogical, both reflect a commitment to equity that I carry into my teaching practice.

Conclusion

Teaching is, for me, an activity grounded in a specific conviction: that students deserve to be better prepared than I was at their stage. As a Vietnamese-Canadian woman from a low-income, first-generation household, I navigated every transition in my education by discovering the gap after I had already fallen into it. These experiences are the reason I am motivated to teach and mentor the next generation of students.

I strive to close the gap between what undergraduate statistics education currently delivers and what students actually need, particularly those who, like me, arrive without the informal knowledge and networks that make every transition easier. This shapes my curriculum, my assessment design, my approachability, and my awareness that for some students, seeing someone like them at the front of the room is itself a form of preparation.

I am still early in my career as a lecturer, and I hold that with humility. But the evidence presented here, from student evaluations and unsolicited feedback to the published research that grew directly out of my teaching, reflects a genuine and sustained investment in the quality and equity of student learning. I look forward to continuing this work.

Supplementary Materials

Selected course materials are included as supplementary files, among them a sample of lecture slides and the course syllabus for STA380H5 (Computational Statistics, Winter 2026). The full course evaluation report for STA380H5 is also included for reference. Additional materials, including the full set of lecture notes, tutorial resources, and course project details, are publicly available through the course website at annahuynhly.github.io/sta380.