

# Teaching Statement

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As someone teaching introductory courses in quantitative methods to social scientists, I face a polarized audience. Some students start their program with considerable experience on mathematical thinking, statistics, and statistical programming. Others start with an appreciation for quantitative research, but come from career paths designed to explicitly avoid math.

My approach to keep both audiences engaged within one term is to unify math, statistics, and coding as the task of acquiring a new language. A single course will not teach students everything they need to know to become fluent, but it can give enough tools to facilitate future learning in a direction that is beneficial to students with diverse backgrounds and career goals. For some, this may mean engaging directly with data and code or even creating new methodologies. For others, the goal may be just to communicate productively with scholarship drawing on quantitative findings or data analysts at the workplace.

To accommodate this diversity, I design courses with two principles in mind. First, students need flexibility to engage with the course on their own terms and focus on the content they find useful. For example, the flipped classroom lab sessions in my course on data analysis for public opinion and policy at McMaster asked students to evaluate a research design, suggest alternatives or modifications, and to evaluate its statistical properties through coding and writing. Some students may propose increasing the sample size, sampling from a different underlying population, or changing the assignment of treatment conditions. This allows students to pursue the tasks that suit their interests and gives me the freedom to reward creativity and effort over correctness. This principle also applies to the problem sets in my graduate introductory methods course, where contract grading allows me to reward learning even when student stuck on coding errors.

The second principle is accountability, which is necessary to keep everyone on task while allowing flexibility. This means agreeing on an overarching theme that every single course activity must relate to. For example, early on my data analysis for public opinion and policy course, I introduce the bias-variance tradeoff as a principle to choose among alternative research designs. So, while students are free to propose any modification to an existing research design that they deem appropriate, they are also required to document the explicit or implicit costs that would come from their proposal. They must consider, for instance, that a representative sample is more expensive than a convenience sample, or that implementing a block-randomized experiment may require access to variables that cannot be measured easily. I plan to apply the same principle in my upcoming seminar on methods for evidence-informed decision-making.

Flexibility and accountability also help in preventing instances of discrimination in the learning process. Through flexibility, students are invited to add value to the course by bringing their

own perspective, knowledge, or experiences. In turn, accountability sets the scope for the type of contributions of interventions that are admissible. From this perspective, a racist remark is unacceptable not because someone disagrees with it, but because it is beyond the scope of the course vocabulary.