
HANNAH CONSTANTIN, University of Toronto
“Introduction to Proofs” as an Invitation to Exploration

As mathematicians, we recognize that the pursuit of mathematics requires exploration, experimentation, and a good deal of patience, and that outcomes are often uncertain. Students, however, sometimes struggle with the preconception that when it comes to math, either you “get it or you don’t.” How do we manage to convey the “mathematician as explorer,” rather than as automaton? More importantly, how can we help students see this path of inquiry as one that is open to them, and encourage their sense of autonomy and capability in engaging in mathematics?

In this talk, I will discuss some methods I used in an “Introduction to Proofs” class to try to address this question. These include discovery-based learning techniques in lectures and tutorials, an emphasis on the role of conjecture in mathematics, and alternative assessments. In particular, I will speak on the use of a “two-stage” midterm involving exploratory group work, and a long-term individual reflective/creative project, the “proof portfolio.”