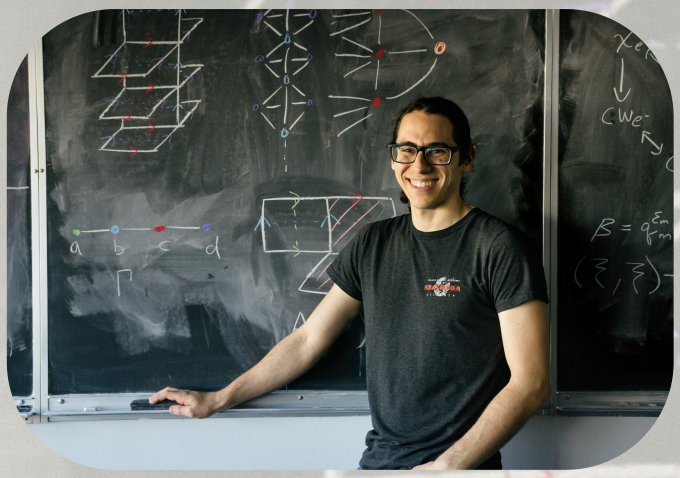
Swarthmore College
Mathematics & Statistics Department
COLLOQUIUM SERIES 2026-2027



Jacob Russell

Mathematics & Statistics Department

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Curves on Surfaces, Symmetry and Color

Manifolds are the fundamental model for spaces that are locally simple, but can be globally complicated. Two dimensional manifolds are called surfaces, and they hold a special place in mathematics. Particularly rich is the study of the symmetries of these surfaces which are integral to using surfaces to probe higher dimensions.

We will introduce surfaces and manifolds through the quintessential geometric question: what is the shape of the universe? We will then discuss how the curves you can draw on a surface let us translate questions about surfaces into combinatorial problems about graphs. We will finish with two examples of student projects at Swarthmore that uncovered new results about graphs built from curves on surfaces.

Tuesday, September 29
4:15pm Refreshments, 4:30pm Lecture
Science Center 199