

1145-E1-2545

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Mathematics Immersion Eases the Transition to Proof. Preliminary report.

The Mathematics Immersion Project at the University of North Georgia includes four bundled courses and targets the transition to proof for undergraduate mathematics majors. Immersion students must concurrently be enrolled in all four courses: Introduction to Proofs, Abstract Algebra, Linear Algebra and Probability and Statistics. The preliminary results from this pilot study indicate teaching and learning are both significantly different from traditional, stand-alone courses and may support the transition to proof better than traditional coursework. The common enrollment allows flexibility in teaching and a focus on cross-cutting topics. The transition to proof is aided by introductory level proofs from material in Linear Algebra and Probability and Statistics. Integrated topics addressing three or more courses at once foster improved acquisition of conceptual understanding in all the courses. Students learn proofs in multiple contexts all of which support a successful outcome in the proof-intensive Abstract Algebra course. The transition to proof from introduction all the way to success in Abstract Algebra in a single semester seems daunting, yet the intensive approach provides unique opportunities to improve learning outcomes for undergraduate mathematics majors. (Received September 25, 2018)