

Modeling-Forward Initiatives in Differential Equations

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Mathematics faculty at VCU have collaborated with science and engineering faculty over the past several years to improve curriculum alignment between disciplines. One major focus has been incorporating more applications and biological data modeling into our introductory Differential Equations course. A simple shift in the types of problems given as student work has evolved into large-scale efforts to engage differential equations students in the complete modeling cycle. We will present several examples of differential equations modeling projects created and adapted for this effort by interdisciplinary faculty teams as part of the NSF-funded SUMMIT-P initiative, including development process, strategies for use, and lessons learned. We also will discuss recently published work about investigations into student knowledge transfer between differential equations and partner discipline courses.