

# Electronic Mathematics Education Seminar



## The Inquiry Oriented Differential Equations Project

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Undergraduate mathematics education today faces a number of challenges and difficulties. One way to address these challenges is to build on promising theoretical advances and instructional approaches, even those not originally developed with undergraduate mathematics in mind. The Inquiry Oriented Differential Equations Project (IODE) is one such effort, which can serve as model for other undergraduate course innovations. In this presentation I describe central characteristics of the IODE approach, report on results of a comparison study, and provide an overview of the modeling sequence that leads to the emergence of a bifurcation diagram, a surprising and illustrative example of student reinvention. The overview and examples of student work tendered offers a fresh perspective on modeling and how an inquiry-oriented sequence of tasks can lead to the reinvention of significant mathematics.

To join the seminar, go to  
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