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Celil Ekici* (celil.ekici@uvi.edu), RR1 Box 10000, Kingshill, VI 00850-9781, and **Andrew Gard** (andrew.gard@uvi.edu). *Inquiry-Based Learning of Transcendental Functions in Calculus I and II.*

Developing a deep understanding of transcendental functions such as e^x and $\sin x$ should be an essential secondary goal of any calculus sequence. In recent semesters, we have pioneered inquiry-based calculus learning activities engaging students in building a series of polynomials with self-similar derivative structures. While using educational technologies in their explorations, students in peer groups develop their understanding through algebraic, numerical and geometric representations. This discourse facilitates students' construction of the series representations of transcendental functions. Students discover that the problem of their synthesis can be reduced into a sign pattern problem ultimately solved by devising a number whose powers reproduces the pattern. First-semester work culminates in the discovery of the Euler's Formula and paves the way for second-semester applications from the integral standpoint. We will further share our philosophy, techniques and results. (Received September 15, 2014)