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**Larry Wayne Lewis\*** (l1ewis61@ivytech.edu) and **Rebecca Patterson** (becky.patterson@louisville.edu), KY. *Using Predictive Mathematical Modeling to Determine What Impacts Student Retention in the First, Second, and Third Years.*

Predictive mathematical modeling of student data can be an effective tool for addressing issues of enrollment management, institutional fit, and persistence to graduation. A predictive model was developed using the 2006 and 2007 Graduation Rate Survey (GRS) cohorts from a metropolitan research university and used to score the 2008, 2009, and 2010 cohorts. As a follow-up to two previous analyses focusing on student retention in the first year and second year, data from the National Student Clearinghouse were used to investigate issues of institutional fit and affordability for students persisting to the third year. A comparison of variables that impact retention in the first, second, and third years was developed. The changing profile of students as they progress toward graduation provides insight into new approaches to student programming designed to increase persistence to graduation. (Received September 16, 2014)