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**Juan Carlos Apitz\*** (jc@jcapitz.com), Department of Mathematics and Statistics, California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840. *Classification and Prediction: What Admissions and Grades Data Tell Us About Who is Likely to Succeed in Undergraduate Mathematics Programs*. Preliminary report.

In this work we implement machine learning ideas in order to identify possible key success factors in students pursuing undergraduate degrees in mathematics at UCLA. The primary framework utilizes regularized logistic regression. The regularization is performed at two levels. We develop results based on  $L_1$  norm and elastic net regularized logistic regression. The data examined consists of sixteen years worth of enrollment records from the mathematics department at University of California, Los Angeles (UCLA). The features contained in the data set consist of course grades along with ethnicity and gender profiles, majors, transfer status, and terms. The objective of the analysis is two fold. First we utilize dimensionality reduction to identify the key features of students achieving a certain grade threshold; second, we fit a classification model to identify students likely to perform well vs. students not expected to have strong outcomes.. The results are reported in probabilistic measures of performance. (Received September 23, 2015)