

1116-AB-1650      **Greg Oates\*** ([g.oates@auckland.ac.nz](mailto:g.oates@auckland.ac.nz)), Department of Mathematics, Private Bag 92019, Auckland 1142, Auckland, 1023, New Zealand. *The LUMOS Project: What do we really learn in Undergraduate Mathematics?*

The LUMOS Project (Learning in Undergraduate Mathematics Outcomes Spectrum) is a two-year New Zealand study investigating the wider Learning Outcomes of undergraduate mathematics. This national project is jointly funded by Ako Aotearoa, the National Centre for Tertiary Teaching Excellence, and the Teaching and Learning Research Initiative (TLRI). While we do consider the commonly measured learning outcomes of skills and content knowledge, the main focus of our study is on affective, cognitive and process outcomes such as attitudes and beliefs, mathematical processes, communication, habits and expectations. A large part of the project has been involved in developing instruments by which we might observe these outcomes. I will first briefly describe the three initiatives we introduced as windows for these observations, especially the use of Team-Based Learning (TBL) in advanced mathematics pioneered by our late colleague and principal investigator Judy Paterson. I will then consider some of our results including progress on observing attitudes, the effect of active-technology tasks, an evolving instrument for assessing mathematical communication, and an emerging consideration of mathematicians' habits we have conceptualized as mathematical foresight. (Received September 21, 2015)