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Michael Olinick* (molinick@middlebury.edu), Department of Mathematics, Warner Hall, Middlebury College, Middlebury, VT 05753. *Sustainability as a Focus for an Introductory Calculus Course.*

Sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs. Calculus, with its powerful tools to examine change, provides an effective means to investigate sustainability questions. We will outline a proposed introductory calculus course in a liberal arts setting which brings these issues to the forefront. The course emphasizes working with real world data sets, model building and analysis, and curve fitting. Some specific questions we will examine include: How fast is the world population increasing? If we continuously release a pollutant into a lake at a known rate, what's the total amount of pollutant that will be dumped into the water in the next five years? How long will the nonrenewable supplies of coal and oil last if we maintain the current per capita use but population continues to grow? How long will supplies last if industrialization and a "rising standard of living" push per capita usage ever higher? If we disturb the natural population dynamics of a salmon species by fishing, how should we regulate our removal of fish to provide a maximal sustainable yield in the future? (Received September 20, 2009)