1106-D5-1485 **Tiernan R Fogarty*** (tiernan.fogarty@oit.edu), Owens 101, 3201 Campus Drive, Klamath Falls, OR 97601-8801. *Numerical differentiation and integration in first year Calculus. Examples of computational exercises.*

A large percentage of students in my first year calculus courses have typically seen the material before either in high-school or in the same course during a previous term. In an attempt to re-engage these students, I have found myself assigning more computational projects that require the students to program numerical differentiation and integration methods. These exercises are always part of an extended project where the students are expected to complete a technical report detailing solution methods and comparing results from various numerical techniques with analytical solutions. Such projects always require that graphical results are generated via student-written code and thoroughly explained.

In this presentation I will share examples of projects I have required in both differential and integral calculus courses. Projects are designed with the assumption that students have never seen the material in the course before nor have any programming ability. I do spend a few (maybe two or three) days in a computer lab with the class to help introduce basic programming to those who need it. In my experience students have responded very well to this type of exploration of calculus and I have received a great deal of positive feedback on these projects from former students. (Received September 13, 2014)