

1095-97-279

**Angela Gallegos\*** (agalle11@lmu.edu), CA , and **Zhengyi Zhou Meercamp** (zz254@cornell.edu), Center for Applied Mathematics, Cornell University, Ithaca, NY. *Road Rage and You: Macroscopic traffic models as a means to teaching ordinary and delay differential equations*. Preliminary report.

We use ordinary and delay differential equations (ODEs and DDEs respectively) to “macroscopically” model traffic flow in a single lane or link that has traffic lights. The ODE model in particular provides students with an accessible framework to explore a model type usually reserved for partial differential equations. In addition, the model is an excellent opportunity to explore stability properties and numerical simulation within this modeling framework. However, the comparative framework with the DDE setting allows an introduction to a type of differential equation not usually seen at the undergraduate level. In particular, this opens the door to comparisons of different modeling approaches and the implications of different choices in method. (Received September 11, 2013)