

1154-Q1-127 **Lorelei Koss*** (koss@dickinson.edu). *SIR Models: Differential Equations that Support the Common Good.*

In 2015, UNESCO argued that “education and knowledge are common goods and represent a collective societal endeavor in a complex world based on respect for life and human dignity, equal rights, social justice, cultural diversity, international solidarity and shared responsibility for a sustainable future.” In this talk, we explore how SIR models have been extended beyond investigations of biologically infectious diseases to other topics that contribute to social inequality and environmental sustainability. We present models that have been used to study sustainable agriculture, drug and alcohol use, the spread of violent ideologies on the internet, criminal activity, and health issues such as bulimia and obesity. Teaching these models in an undergraduate differential equations class contributes to the common good as proposed by UNESCO. (Received August 12, 2019)