1135-VC-2354 **Sierra Nicole Murphy\*** (`sierra.n.murphy@asu.edu`). *A New Lens for Prostate Cancer Modeling: Cholesterol's Role in Predicting a De-Differentiating Tumor.* Preliminary report.

Though initially androgen deprivation therapy effectively treats prostate cancer, the tumor eventually becomes resistant. One mechanisms of resistance, the hypersensitivity pathway, bypasses therapy by producing androgen locally from precursors, such as cholesterol. The correlation between high cholesterol and higher incidence of prostate cancer, the increase of ACTH during therapy, and the lower risk of prostate cancer for patients on statins, all support this mechanism of resistance. However, current mathematical models of prostate cancer do not consider cholesterol. Thus, including cholesterol, and related factors, contributes to a new class of mathematical models that are more biologically relevant. This brings the mathematical community closer to accurately modeling the dynamics of cancer and predicting when the tumor escapes treatment. (Received September 26, 2017)