1145-34-2543 **Maria Teresa Hernandez*** (mariahernandez@csumb.edu), 100 Campus Center, Seaside, CA 93955, and **Judith E. Canner** (jcanner@csumb.edu), 100 Campus Center, Seaside, CA 93955.

Fitting Classical Mathematical Models to Small Data Sets from Lewis Lung and Human Breast Carcinomas. Preliminary report.

Classical mathematical models are useful in modeling tumor volume growth, however, it is difficult to measure regular and long-term growth in a clinical or lab setting for ethical reasons. Hence, we must develop methods to fit models to small data sets to develop models for clinical use. We explored the minimum number of observations necessary to confidently fit the logistic and generalized logistic growth models for the prediction of tumor growth via computer simulations in R. We simulated data using estimated parameters from previous in vivo experiments with mice that observed the growth of Lewis lung and human breast carcinomas, adding a reasonable level of noise, and setting our time frame to one observation per day for 30 days. The models were visually assessed for fit to the observed data over specified time intervals and future growth prediction. The results showed that the predictive accuracy limit and best fit limit for data generated from the logistic model is 25 days for breast cancer and 15 days for lung cancer; for data generated from the generalized logistic model, it was 20 days for breast cancer and 10 days for lung cancer. Future simulations will be conducted by using varying levels of noise, different time frames, and more sophisticated model selection methods. (Received September 25, 2018)