

Undergraduate Research Seminar
Wednesday, February 4th, 2015 5:30 p.m.
Leigh 309

Sydney Newsom

“Innocent Victims: Food Insecurity and Child Mortality in Brazil”

The concept of food insecurity was first endorsed as a target of public policy by the World Food Conference in 1974 and later reaffirmed by the World Food Summit in 1996. The concept has prompted research on ways to increase food production at the national level and reduce hunger among individuals. This study turns attention from the causes to the consequences of food insecurity on population's quality of life as measured by the probability of death in the early years of life. The analysis applies logistic regression methods to data provided by Brazil's 2009 National Household Survey to show that, independent of the major determinants of child mortality (household income, maternal education, maternal age, geographic location, gender of the head of household, and race), children born into households that suffer food insecurity experience a higher risk of death. Evidence that food insecurity has an independent effect on child survival contributes to the study of the causes of child mortality in developing countries and underscores the conclusion that access to sufficient food to meet dietary needs in Brazil is independent of social and economic standing.

Christopher Louviere

"An Exploration of the Effects of Metabolic Exploitation and Nutraceutical Combination on Tumor Metastases"

Cancer is a complex disease resulting from the deregulation of multiple pathways driving tumor initiation, growth, and resistance to treatments. Cancer cells produce energy through a process termed the Warburg Effect, where after glycolysis, which converts glucose into pyruvate and produces energy in the forms of ATP and NADH, the cells undergo lactic acid fermentation in their intercellular fluid, which produces ATP through lactic acid fermentation. The metabolism of brain tumors relies upon glucose as its primary fuel source, and cannot process ketone bodies like the metabolism of normal, healthy cells. Therefore, a ketogenic diet, a high-fat, low carbohydrate diet, is effective at exploiting the Warburg Effect. Preliminary results obtained from the lab have demonstrated that a customized ketogenic diet, in combination with food product derivatives with a low cumulative toxicity, termed “nutraceuticals,” decreased the proliferation rate of glioblastoma cells in a clinically relevant preclinical animal model, yet provided healthy cells with energy in the form of ketone bodies. However, the effect of this treatment in delaying or preventing tumor metastases in the brain has not yet been studied.