1154-34-887 **Lale Asik*** (lale.asik@ttu.edu), Department of Mathematics and Statistics, Texas Tech University, 1108 Memorial Circle, Lubbock, Lubbock, TX 79409-1042, and **Ming Chen** (chenm688@dlmu.edu.cn) and **Angela Peace** (a.peace@ttu.edu). *Stoichiometric Knife-Edge Model on Discrete Time Scale.*

Ecological stoichiometry is the study of the balance of multiple elements in ecological interactions and processes. Modeling under this framework enables us to investigate the effect of nutrient content on organisms whether the imbalance involves insufficient or excess nutrient content. This phenomenon is called the "stoichiometric knife-edge". In this study, a discrete-time predator–prey model that captures this phenomenon is established and qualitatively analyzed. We systematically expound the similarities and differences between our discrete model and the corresponding continuous analog. Theoretical and numerical analyses show that while the discrete and continuous models share many properties differences also exist. Under certain parameter sets, the models exhibit qualitatively different dynamics. While the continuous model shows limit cycles, Hopf bifurcations, and saddle-node bifurcations, the discrete-time model exhibits richer dynamical behaviors, such as chaos. By comparison the dynamics of the continues and discrete model, we can conclude that stoichiometric effects of low food quality on grazers are robust to the discretization of time. This study can possibly serve as an example for pointing to the importance of time scale in ecological modeling. (Received September 11, 2019)