Ecological processes are naturally structured and depend on the flow and balance of essential elements such as carbon (C), nitrogen (N), and phosphorus (P). The theory of Ecological Stoichiometry (ES) considers the balance of multiple chemical elements and how the relative abundance of essential elements in organisms affects ecological dynamics. Recently, the integration of ES theory into population dynamics has provided a useful lens into understanding how stoichiometric constraints can help shape food webs and nutrient cycles. Nutritional constraints are common as food resources are rarely optimally suited for grazing species. Elemental mismatches between trophic levels can influence population growth and foraging behaviors. Mathematical models developed under the framework of Ecological Stoichiometry can help shed light on population dynamics subject to stoichiometric constraints. I will give a brief overview of stoichiometric producer-grazer models (systems of ordinary differential equations) and present some commonly used functional forms for incorporating stoichiometric constraints into trophic interactions. Moving forward from here, this modeling framework has the potential to investigate the influence of stoichiometric constraints on biodiversity and nutrient cycling and how they propagate throughout larger and more complex food webs.