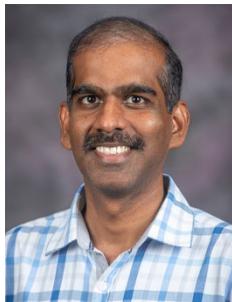


# Department of Biochemistry and Molecular Biophysics Seminar

Wednesday, February 4 at 4:00 p.m. in Ackert 120  
Coffee and cookies at 3:45 p.m. in Chalmers 168



**Dr. Prasad Parchuri, Assistant Professor**

**Division of Biology, Kansas State University**

## Decoding Anabolic and Catabolic Lipid Dynamics to Engineer High-Value Seed Oils for Food, Fuel, and Oleochemicals

Plant seed oils are a renewable source of diverse fatty acids with wide-ranging applications in food, biofuel, and oleochemical industries. The value of these oils—stored primarily as triacylglycerols (TAGs)—is determined by their fatty acid composition. Despite decades of metabolic engineering, precise control of seed oil composition has remained challenging, highlighting fundamental gaps in our understanding of the metabolic networks that regulate fatty acid flux and TAG biosynthesis. In this talk, I will describe the discovery of TAG remodeling pathway and show how engineering these pathways enables the production of designer seed oils. I will further discuss how the coordinated interplay between anabolic lipid synthesis and catabolic lipid turnover shapes seed oil biosynthesis in *Arabidopsis*. Finally, I will discuss how this work reshapes our understanding of seed oil metabolism and opens new avenues for engineering designer seed oils.