Hydrogels are a class of soft materials that are beneficial for many bioengineering applications, from regenerative medicine to environmental science. To enhance the versatility and functionality of traditional bulk hydrogel biomaterials, recent efforts have turned to the fabrication of granular hydrogels. Granular hydrogels consist of hydrogel microparticle building blocks, or “microgels”, that are assembled into a jammed state to form a soft granular medium. The granular structure allows for flowability and injectability, while the void space between microgels creates microscale porosity for enhanced cell movement. Microgel building blocks can also be mixed and patterned to further enhance material functionality. This seminar will describe my work using granular hydrogels across bioengineering fields, including efforts to explore the granular hydrogel design space to tune biomaterial properties, to translate granular hydrogels for injectable musculoskeletal tissue repair and extrusion (bio) printing, and to build three-dimensional cell culture platforms to study both mammalian and microbial cell behavior in soft granular environments. Overall, granular hydrogels make a significant impact as functional and tunable soft materials for bioengineering applications.