

## “Instructive biomaterials for skeletal muscle tissue engineering”

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Steven joined the faculty of the University of Virginia in fall 2016 as an Assistant Professor in the Department of Chemical Engineering with a secondary appointment in the Department of Biomedical Engineering. Prior to joining UVA he was an NIH Postdoctoral Fellow in the Department of Bioengineering at the University of Pennsylvania. Steven completed his B.S. in Chemical Engineering at the University of Florida and received both his M.S. and Ph.D. in Chemical Engineering from the University of Illinois at Urbana-Champaign. His lab designs biomaterials to explore the dynamic interplay between cells and their microenvironment, applying these platforms to address fundamental human health challenges in understanding disease and engineering tissues. Steven recently received the NIH (NIGMS) Maximizing Investigators' Research Award (MIRA) and NSF CAREER award. His lab is grateful for generous support from the NIH, DoD, NSF, V Foundation, and UVA-Coulter Translational Research Partnership.

### ABSTRACT

Skeletal muscle injuries and diseases are pervasively common in patients of many backgrounds ranging from elite athletes and soldiers to the elderly. Despite the ability of skeletal muscle to repair itself following smaller injuries, there are a variety of injuries and trauma that result in an irrecoverable loss of muscle mass and function, including volumetric muscle loss. My group engineers instructive biomaterials with tailored biophysical and biochemical properties to combat this serious human health challenge. In this talk I will discuss our progress on two biomaterials approaches we are taking: 1) Designing hydrogels mimicking the mechanical environment of developmental muscle niches, and 2) Engineering of electrically conductive 3D collagen-based scaffolds with highly aligned, anisotropic pores.

**Friday, March 16th**  
**12:00 Noon**

Seminar will be presented virtually via Zoom:

<https://go.unc.edu/j5W3E>