

CHEMICAL & BIOMEDICAL ENGINEERING GRAD STUDENT SEMINAR

Designing Peptide-Polymer Conjugates for Instructive and Responsive Biomaterials

Friday, September 11
11:00 AM
COE B221

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ABSTRACT: Biological tissues are complex systems where the spatial arrangement of multiple components (i.e., extracellular matrix, cells) is tightly linked to function. They also undergo constant remodeling in both healthy and disease states. Biomaterials for tissue engineering must therefore reflect this complexity to drive functional tissue regeneration. To address this, our lab designs peptide-polymer conjugates as modular building blocks to fabricate biomaterials with instructive and responsive properties. We have developed end-functionalized polymer conjugates to independently and spatially control surface chemistry, scaffold architecture, and scaffold stiffness. This approach enabled us to engineer scaffolds with spatially organized microenvironments to guide local cell behavior and matrix formation. We recently expanded our conjugate design to create solid polymeric biomaterials that degrade in response to cellular activity. This seminar will describe our platforms and how peptide-polymer conjugates can be used to program instructive and responsive properties to guide tissue regeneration.



This event is sponsored by FAMU-FSU College of Engineering and
Department of Chemical & Biomedical Engineering

