## Tissue Engineering Cartilage with Patient Specific Geometries

The goal of the SMART project will be to develop engineered cartilage in sizes and shapes that mimic that of articular cartilage (i.e. in the knee or hip). The mentee will use 3D printed molds created from CT scans to expand on the modular engineered tissue surface (METS) technique developed in the O'Connell Lab and create large engineered cartilage surfaces. The SMART mentee will learn the process of culturing 3-D hydrogel-cell constructs, measure the growth by compressive strength of the engineered cartilage, and characterize the biochemical composition of the engineered cartilage.

*Audrey Ford*
*Ph.D. Candidate, Mechanical Engineering*

Audrey is a first-year graduate student in the Department of Mechanical Engineering and is advised by Professor Grace O'Connell in the Berkeley Biomechanics Lab. She looks forward to the SMART program as a way to develop her mentoring skills. During her own undergraduate experience, she had the opportunity to explore many research avenues, which have been central to guiding her career path. She hopes to use the SMART program as a way to pass along those opportunities to undergraduates and share her enthusiasm for interdisciplinary research.

*Wan Fung Chui, Sophomore*
*(Physics and/or Computer Science major)*

Wan Fung is a rising sophomore whose interests lie at the intersection of the technical and life sciences. A native of Hong Kong, he matriculated at UC Berkeley to expose himself to world class research and to further his ambition to enter graduate or professional school. The SMART program offered a unique opportunity for him to conduct research in his field of interest in a structured and nurturing environment provided by mentors and various workshops. Wan Fung aims to prepare an abstract for a conference by the end of the summer, deepening his understanding of tissue engineering biomechanics, the laboratory, and the academic world along the way.

UC Berkeley's Student Mentoring And Research Team (SMART) is a paid professional development program that engages doctoral students in creating mentored research opportunities conducted with selected undergraduate student mentees during a ten-week period over the summer. Both participants receive compensation and training throughout their participation. SMART broadens the professional development of doctoral students and fosters research skills and paths to advanced studies for undergraduates.

Expenses associated with each team total $10,000 000 ($5K graduate stipend/ $3.5K undergrad stipend/$1.5K research and conference costs). As a donor-supported program of the Graduate Division, the majority of teams are underwritten through a combination of donor funds paired with matching support courtesy of the Graduate Division.

**Learn more at smart.berkeley.edu**

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