Why SCU BioEngineering?

- **Driven by convergence research, translation of fundamental curriculum designed to address emerging societal needs:**
  
  - Biodevice convergence towards BioAI, Biowearables and Telemedicine
  - Biomolecular convergence towards Immunotherapies and Drug Discovery
  - Biomaterials convergence towards Metamaterials and Intelligent Systems for therapy

- **Diversity and Inclusion:**
  
  - Ratio of male/female faculty 50/50 & Multicultural faculty
  - Amongst higher category of female student representation in School of engineering/STEM

- **Average Faculty student ratio in class (15:1). Faculty student ratio in lab (6:1).**

- **An average of 3 undergraduate research papers/year with leading student co-authors.**

- **The percentage of our students seeking Graduate/Professional degrees since 2012 is 24%.**
  
  - Admissions to PhD programs, Medical/Veterinary/Pharmacy Schools and Law School constitute 10% of the total enrollment since 2012.

- **Seasoned industry veterans with full-time and part-time teaching appointments leading to Silicon Valley internships.**
BioEngineering Students Are:

- School of Engineering Research Symposium Awardees
- Kuehler Award Recipients
- LEAD Scholars
- Hackworth BioEthics Fellows
- Fulbright Scholars
Dr. I. Emre Araci

Implantable/wearable sensors for continuous physiological/biomechanical monitoring

Biochemical automation with microfluidic large scale integration

Microfluidic device physics for development of wearable and implantable biomedical devices
Engineer in vitro platforms to understand and influence complex in vivo phenomena
MilkGuard: Low-cost Sensor for the detection of E. coli in donated human breast milk

Detection of arsenic contamination

Vital Sign Multi-Sensor Kit for Use with Telemedicine

Develop novel microfluidic devices to improve the condition of human health
Engineering medicine for better health and better life

Science Report 2018

HTP screening of cancer drugs using molecule sensors

Journal of Biological Engineering 2017

Engineering medicine for better health and better life
Dr. Maryam Mobed-Miremadi

Flow and viability optimization of extruded cells through 3D printed microneedles

Co-advisor: Prof. Kim

Mathematical modeling and optimization of in vitro platforms for applications in bioengineering

Microbial fuel cells for electrochemical detection of genetic modification

Co-advisor: Prof. Zhang
Understand the immune system to engineer biomedical products and to overcome complex challenges

Dr. Emily Park

Human Immune System & Mechanism of Diseases

Molecular design

Recombinant monoclonal antibody therapeutics

Bioreactor

Viral vectors

Engineered cells for therapy
Dr. Yuling Yan

Arrhythmia detection using ML/DL

MRI image-based detection of brain aneurysm

Al-assisted analyses of medical images/biosignals for disease classifications and applications in human-machine interface
Dr. Jonathan Zhang

Antibodies that block the communication between bacterial and mammalian cells

Engineering cell sensor to measure protein-protein interaction in mammalian cells

Engineer novel materials to study basic biological and medical questions for drug discovery

in vivo non-ribosomal protein ligation