BIOE C117/MECHE C117 - STRUCTURAL ASPECTS OF BIOMATERIALS (4 UNITS)

(Taken from the UC Berkeley Course Guide (http://guide.berkeley.edu))

COURSE OVERVIEW

SUMMARY

This course covers the structure and mechanical functions of load bearing tissues and their replacements. Natural and synthetic load-bearing biomaterials for clinical applications are reviewed. Biocompatibility of biomaterials and host response to structural implants are examined. Quantitative treatment of biomechanical issues and constitutive relationships of tissues are covered in order to design biomaterial replacements for structural function. Material selection for load bearing applications including reconstructive surgery, orthopedics, dentistry, and cardiology are addressed. Mechanical design for longevity including topics of fatigue, wear, and fracture are reviewed. Case studies that examine failures of devices are presented.

PREREQUISITES

BIO 1A (bio1a.html), MSE 45 (mse45.html), CIVE 130 (cive130.html) or CIVE 130N/a> or (cive130n.html)BIOE 102 (bioe102.html), and E 90.

Students will receive no credit for Mechanical Engineering C117 after completing Mechanical Engineering C215/Bioengineering C222.

Spring only

WORKLOAD

TIME COMMITMENT

3 hours of lecture and 1 hour of discussion per week.

UC Berkeley Course Guide (http://guide.berkeley.edu)

COLLEGE OF CHEMISTRY PEER SERVICES

Made by Angela Lee, c/o 2019

(https://www.facebook.com/groups/1[illegible]/) (https://www.chem.berkeley.edu/ugrad/curr

lang=en) students/peer-

advising