Biomechanics

Faculty: Mark Bathe, Paul Blainey, Alan Grodzinsky, Jongyoon Han, Maxine Jonas, Roger Kamm, Amy Keating, Harvey Lodish, Scott Manalis, Katharina Ribbeck, Peter So, Bruce Tidor, Krystyn Van Vliet, Steve Wasserman

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Description: This concentration establishes a fundamental understanding of the mechanics of biomolecules, cells, and tissues. Experimental techniques and theoretical models are covered at each length-scale, with an emphasis on biomedical applications and technologies.

Guide for class selection: One of the three Restrictive Electives must be 20.310.

Restricted Electives

20.310 Molecular, Cellular, and Tissue Biomechanics (U) same as 2.797, 3.053, 6.024
   Prereq: 2.370 or 2.772J; 18.03 or 3.016; Biology (GIR)

Plus 2 additional courses from this list:

3.052 Nanomechanics of Materials and Biomaterials (U)
   Prereq: 3.032 or permission of instructor

3.032 Mechanical Behavior of Materials (U)
   Prereq: Physics I (GIR); 3.016 or 18.03

7.38 Mechanical Cell Biology (U)
   Prereq: 7.06

2.785 Cell-Matrix Mechanics (G, H) same as 3.97, 20.411, HST.523
   Prereq: 2.001, or 2.01 and 2.02A, Chemistry GIR, Biology GIR; or permission of instructor

2.799 The Cell as a Machine (G, H)
   Prereq: 5.07, 18.03, or 7.05

3.22 Mechanical Behavior of Materials (G)
   Prereq: 3.032 or permission of instructor

20.415 Physical Biology (G)
   Prereq: Permission of instructor