

The ECM, Adhesion Receptor Signaling, and Translational Biomechanics (CAMB703/BE640)

Course Directors: Wells/Mauck
Spring 2020, Tu/Th 2:30-4:00 PM, BRB 1101

<u>Date</u>	<u>Topic</u>	<u>Faculty</u>
1. Th 1/16	Introduction to the course, sign up for sessions Lecture: Introduction to cell mechanics	Mauck/Wells Janmey
<u>PART I: The Matrix and its Receptors</u>		
2. Tu 1/21	Lecture: The ECM Lecture: Cell/tissue mechanics	Wells Alisafaei
3. Th 1/23	Lecture: Adhesion Receptors and Signaling Lecture: Mechanotransduction	Assoian Mauck
4. Tu 1/28	The ECM I	Assoian
5. Th 1/30	The ECM II: long-range signaling	Shenoy
6. Tu 2/4	Controversies in Substrate Sensing	Jamney
7. Th 2/6	Mechanical memory	Mauck
8. Tu 2/11	Signaling and force transduction	Wells
9. Th 2/13	Adhesion receptors (integrins)	Mauck
10. Tu 2/18	Roundtable: Integration of Part I	Wells/Mauck
<u>PART II: Forces on Cells and Mechanotransduction</u>		
11. Th 2/20	Adhesion receptors (cadherins)	Assoian
12. Tu 2/25	Lecture: Fluidics and microfabrication (incl. micro-contact printing) Lecture: Biomaterials	Huh Davidson
13. Th 2/27	Interstitial/3D cell migration	Petrie (Drexel)
14. Tu 3/3	Mechanics and cell assembly	Hughes
15. Th 3/5	Nuclear mechanics and mechanotransduction	Mauck
(Spring Break)		
16. Tu 3/17	Stem cells and morphogenesis	Gerecht (Hopkins)
17. Th 3/19	Integration of soluble and mechanical factors	Wells
18. Tu 3/24	Gradients vs. maxima/minima	Wells
19. Th 3/26	Force modulation and the cytoskeleton	Ostap
20. Tu 3/31	Fluid flow and cells	Huh
21. Th 4/2	Plasticity of mechanical signaling	Wells/Mauck
22. Tu 4/7	Roundtable: Integration of Part II	Wells/Mauck
<u>Part III: Translational Biomechanics and Disease</u>		
23. Th 4/9	Mechanotransduction in cardiac tissues	Prosser
24. Tu 4/14	Mechanotransduction in musculoskeletal tissues	Mauck
25. Th 4/16	Mechanics and cancer	Cukierman (Fox Chase)
26. Tu 4/21	Developmental mechanobiology	Boerckel
27. Th 4/23	Fibrosis and wound healing	Loebel
28. Tu 4/28	Roundtable: Integration of course material	Wells/Mauck

Farid Alisafei
Vivek Shenoy
Dan Huh
Ryan Petrie
Alex Hughes
Sharon Gerecht
Edna Cukierman
Claudia Loebel
Joel Boerckel
Rick Assoian
Robert Mauck
Rebecca Wells
Paul Janmey
Michael Ostap
Benjamin Prosser
Matthew Davidson