Harvard-MIT Division of
Health Sciences and Technology

Spring Term 2013

HST-521 – Biomaterials, Tissue Engineering and Regenerative Therapeutics

February 6 – May 22, 2013
Wednesdays and Fridays, 1:00 – 3:00 pm at Harvard Medical School (260 Longwood); Rm L-008

Course Director: Frederick J. Schoen, MD, PhD (fschoen@partners.org)
Associate Course Director: Ali Khademhosseini, PhD (alik@mit.edu)

Prereqs: Biology, Chemistry, and HST-030 (or HST-035) Human Pathology recommended; or permission of instructor

HST-521 will:

➢ Focus on 1) the structure, properties, and applications of biomaterials (synthetic or modified natural materials used to evaluate, replace tissues, organs or biological functions); 2) biological principles (e.g., development, stem cells, mechanobiology) that support tissue engineering, stimulation of tissue regeneration, and stem cell therapeutics.

➢ Provide an integrated biological/engineering and academic/corporate approach to biomaterials, their applications and the development, commercialization and clinical translation of medical devices.

➢ Probe mechanisms and methods of evaluation for tissue/biomaterials and patient/device interactions, and their significance.

➢ Assess current challenges and cutting-edge technological solutions to medical problems.

Additional topics will include: stem cells and regenerative medicine; biofunctional materials; nano-biomaterials; issues in design, development, fabrication, and pre-clinical and clinical evaluation; regulatory concerns; and novel research directions and applications of materials to medicine.