EMTM 670
Medical Devices
E. Bernstein

This course will provide a basic understanding of some of the scientific principles at the foundation of medical devices. In addition, some of the unique business aspects of medical device companies will be highlighted and discussed such as FDA regulation, bioterrorism, safety of medical devices, and medical ethics.

Medicine has been forever changed by advances in biotechnology and medical devices. Advances in molecular biology and the completion of the human genome project will forever change the practice of medicine. A few designer drugs have targeted and cured specific diseases that only a decade ago were considered incurable. Further advances will proceed at a logarithmic pace, and the pharmaceutical companies of the future will produce drugs that target very specific diseases through genetic engineering. A thorough understanding of the basic principles underlying medical diagnosis and treatment in the context of biotechnology is essential for future business leaders. Medical devices have evolved recently at a feverish pace, with advances in engineering including nanotechnology paving the way for these advances. These advances in technology come at a price, and price pressures have impacted hospitals in America today, possibly forcing tough choices for future leaders.

Specifically, the course uses a mixture of case discussions and lectures from leaders in the field of medical technologies to help students/participants:

1. Gain an introductory understanding of some of the basic scientific and medical concepts that form a foundation for understanding biotechnology and medical devices.
2. Develop a systematic approach for evaluating the technology and business structure of biotechnology and medical device companies
3. Understand some of the essentials and pitfalls common to medical device start-ups
4. Form an understanding of medical device companies by interacting with scientists and business leaders making key decisions for major companies or Universities
5. Understand some of the unique ethical issues surrounding the field of medicine
6. Develop a passion for the field of biotechnology and medical devices
7. See laser surgery in action: Field Trip to a Dermatologic Laser Center (to be scheduled)