



Biomedical Nanotechnology I

BIOMEDE 5661

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

Survey of biomedical micro and nanotechnology with particular emphasis on design and construction strategies for therapeutic nanodevices incorporating biological components.

Prerequisites and Co-requisites:

Prereq: 4610 or equiv, and Sr standing; or Grad standing; or permission of instructor.

Course Goals / Objectives:

- Describe nanotechnology-dependent strategies to delimit activities of semi-biological therapeutics and diagnostics in time and space (uptake, targeting, triggering) in vivo
 - Describe opportunities for use of nanotechnology-based therapeutics and diagnostics to treat/detect disease states and physiological processes that are provided by pathophysiology of selected disease states
 - Describe physiological processes and systems relevant to nanotherapeutics and diagnostics and mechanisms by which they influence fate, distribution and function of nanodevice therapeutics and diagnostics in vivo
 - Synthesize the above information into a proposal to build a previously undescribed therapeutic/diagnostic nanodevice for in vivo or ex vivo use
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Course Topics:

- nanoscale mass transport
 - nanomechanics
 - nanofluidics
 - bioconjugates and medical therapeutics
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Designation:

Elective