Department of Mechanical and Aerospace Engineering

BioMechanical and BioSystems Minor

The field of Biomedical Engineering is at the interface of engineering, life sciences, technology, and medicine. Biomedical engineers combine engineering principles and practice with medical and biological sciences to design and create equipment, devices, processes, computer systems, and software used in the medical, biotechnological, and pharmaceutical fields.
BioMechanical and BioSystems Minor

What Do Biomedical Engineers Do?

Biomedical engineers apply engineering principles to the medical and biological sciences to design and develop equipment, devices, computer systems, software, and molecular and cellular engineering tools used in the medical, biotechnological, and pharmaceutical fields. Popular subspecialties include Biofluids, Biomechanics, Biomaterials, Biomedical Microelectromechanical Systems (BioMEMS), Bioinstrumentation, Systems Biology and Physiology, and Rehabilitation Engineering. They often serve a coordinating function, using their background in both engineering and medicine. For example, they may create products for which an in-depth understanding of living systems and technology is essential. They frequently work in research and development and in quality assurance.

Sub-specialty areas:

Bioinstrumentation: development of devices used in the diagnosis and treatment of disease.

Biomaterials: the study of naturally occurring or laboratory-designed materials for medical devices.

Biomechanics: the study of mechanics to solve biological or medical problems.

Clinical engineering: management of medical technology to optimize healthcare delivery.

Rehabilitation engineering: development of devices that assist individuals with physical and cognitive impairments.

Systems physiology: the study of living organisms through engineering tools.

The Biomechanical and Biosystems Engineering Minor

The Department of Mechanical and Aerospace Engineering has introduced a new interdisciplinary program focused on preparing engineering and science graduates with a familiarity and a clear understanding of the benefits of biomedical technologies and who will consider employment in the biomedical industry, universities, and the government.

Minor

Students are required to take a total of 15 credits satisfied by five core courses in the Minor:

BMS-UY 1004 Introduction to Cell and Molecular Biology (no prerequisites)

ME-UY 4623 Biomechanics (pre-reqs: ME-UY 3213, BMS-UY 1004)

ME-UY 4633 Biomaterials (pre-reqs: ME-UY 2813, BMS-UY 1004)

ME-UY 4643 Biofluid Mechanics (pre-reqs: ME-UY 3313, BMS-UY 1004)

ME-UY 4653 BioMEMS & Microfluidics (pre-reqs: ME-UY 2813, ME-UY 3513, BMS-UY 1004)

Interested students are advised to consult with a mechanical engineering adviser:

Prof. Joseph Borowiec <borowiec@nyu.edu>

Prof. SangHoon Nathan Lee <sh.lee@nyu.edu>

Or with the Minor coordinator:

Prof. Alesha Castillo <alesha.castillo@nyu.edu>