BIOPHYSICS *Pre-Health*

COLLEGE OF ARTS + SCIENCES

LOYOLA UNIVERSITY NEW ORLEANS

WHEN PEOPLE ASKED you what you wanted to be when you grew up, you never knew whether to say doctor or scientist. Astronaut or surgeon. Loyno's Biophysics Pre-Health program is for students who want to apply to medical school, complete foundational study and research in physics, and develop a deep understanding of methods, that modern medicine uses. You'll work with faculty members studying fields like cellular biophysics, biomechanics, and neural control. You'll apply sophisticated experimental techniques such as patch-clamping and advanced computational methods to biomedical problems. And above all, you'll leave Loyno with the experience you need to stand out on a med school or graduate school application.

Possible Careers:

- Medical doctor
- Neuroscience careers
- Medical physicist
- Biomedical engineer
- Professor

ATTENDING LOYOLA means being in the heart of New Orleans. Our campus is located in the city's historic Uptown neighborhood, just a short drive from the Central Business District, the city's hub of innovation, creativity, and strategic thinking. You'll learn to hone your talents in the city named #1 new brainpower city in America and #1 best city in the U.S. for creative professionals.

COURSES

Biophysics students will take foundational courses in physics, mathematics, chemistry and biology, in addition to specialized biophysics courses, such as Cell Biophysics, Biomechanics or Intro Neural Networks.

Cellular Biophysics

This course focuses on selected physiological processes occurring in biological cells, such as cell homeostasis or action potential in neurons. Although these are biological phenomena, their analysis is inherently multidisciplinary, involving both physical and chemical principles. The course also introduces students to basic mathematical modeling of biophysical phenomena.

Biomechanics & Neural Control

This course is an introduction to biomechanics and the underlying neuromuscular control. In the process, students will learn theoretical and numerical techniques to model and analyze biomechanical systems and simple neural circuits. Every student completes a numerical research project on terrestrial locomotion.

Introduction to Neural Networks and Their Applications

This course will introduce students to neural networks and their applications to intelligent systems and robotics. In the process, students will learn how a crude imitation of a human brain allows a machine to make "guesses" and develop an intelligent behavior from its own experience. The students will learn basic programming techniques and be given a research project in which a machine will have to develop its own strategy to achieve a given task.

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