UNIVERSITY OF NEVADA SCHOOL OF MEDICINE

BIOMEDICAL ENGINEERING

What is biomedical engineering?
Biomedical engineering is a multidisciplinary field in which the principles of engineering are applied to solving problems in biology or medicine. It applies quantitative, analytical, and integrative methods from the molecular level to that of the whole organism to further our understanding of basic biological processes and to develop innovative approaches for the prevention, diagnosis, and treatment of diseases.

What does a career in biomedical engineering involve?
Biomedical engineers research the biology of humans and animals to develop theories, test, prove, or change theories of life systems. Based on the results of their research, they design and develop life-support or health-improvement equipment using engineering and bio-behavioral techniques. Engineers can be involved in the following:

- Developing mathematical models and computer simulations of human bio-behavioral systems.
- Designing and developing instruments, such as artificial organs, limbs, and ultrasound imaging equipment to assist health care professionals in the treatment and diagnosis of disease.
- Working as field engineers to install, adjust and maintain biomedical equipment.

The average annual salary for biomedical engineers ranges from $40,000 to $85,000 depending of location, experience, and degree level.

What type of education is required?
Biomedical engineers usually complete undergraduate programs in electrical, chemical, mechanical, or general engineering before entering masters or doctoral programs. The masters program normally requires two years to complete while the doctoral program usually takes four years. Ideally, applicants should have completed: 2 semesters of biology or physiology, 2 semesters of physics or biophysics, 2 semesters of chemistry or biochemistry, calculus (including differential equations), and demonstrate proficiency in at least one computer programming language.

The **University of Nevada, Reno** offers an inter-disciplinary graduate program that culminates in a Master of Science and/or Doctor of Philosophy degrees. This research-oriented program is designed to prepare students for a competitive, professional career in biomedical engineering. Research emphasis can be a wide range of areas including, but not limited to: biophysics, biofluid mechanics, biomedical instrumentation, biosensors, and studies of biological effects of electromagnetic fields.

Where can I get more information?

Nelson Publicover, Ph.D.
University of Nevada School of Medicine, Anderson Medical Building
Reno, NV 89557; (775) 784-4952; http://www.unr.edu/med/dept/Biochemistry