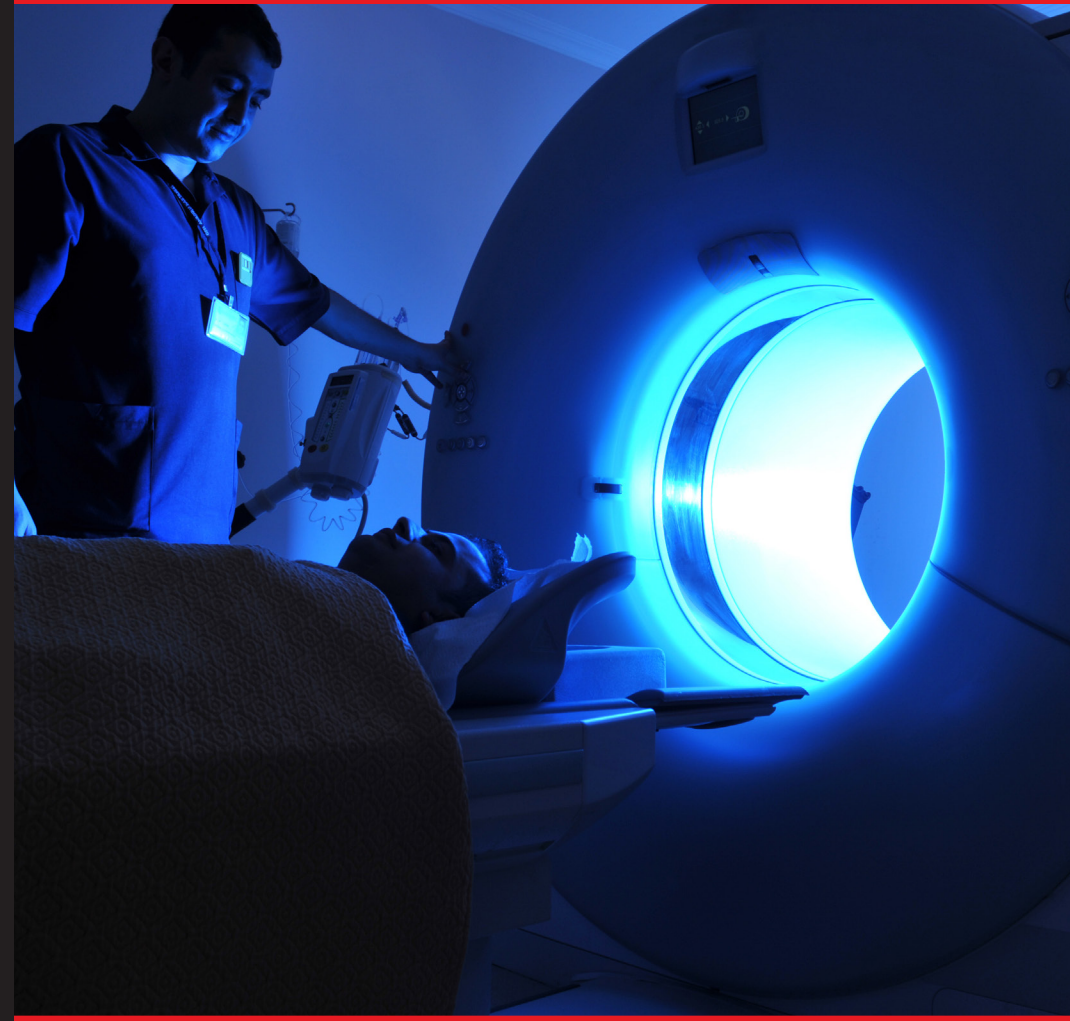


BIOMEDICAL PHYSICS CONCENTRATION



UNIVERSITY OF
Nebraska
Omaha



PHYSICS DEPARTMENT

6001 Dodge Street | Omaha, NE 68182-0243

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cas.unomaha.edu/physics

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 UNIVERSITY OF NEBRASKA AT OMAHA
ARTS & SCIENCES

Biomedical Physics Concentration

What is Biomedical Physics?

Physics + Biology + Medicine.

Biomedical Physics is a field of Physics that applies physical concepts, theories and methods to make new discoveries in biology and improve medicine and healthcare.

Biomedical physicists must be competent in physical and mathematical science, understand biological and physiological systems, and understand and speak the language of physicians.

Degree Information

Bachelors of Science in Biomedical Physics:

- Biomedical Physics concentration is recommended for undergraduate students interested in pursuing careers related to applications of physics in healthcare and biology.
- Students will need 39 credits of physics to complete the program.
- Courses in general physics, core physics courses, and specific biomedical physics courses are required.
- Students majoring in Biomedical Physics will also take chemistry and biology classes as well as “Experimental Physics IV (advanced laboratory)” with experiments focused on biomedical applications of physics.

What do Biomedical Physicists do?

- Discover what causes neurodegenerative diseases such as Parkinson’s and Alzheimer’s
- Prevent heart failure, muscular dystrophy and help develop exoskeleton for patients with brain and spinal injuries, using biomechanics
- Guide the development of a new generation of pacemakers
- Develop optical tools and super-resolution microscopes
- Help neurobiology understand brain function and neuronal network, using electromagnetism
- Create new treatments for cancer with physics at the nanoscale
- Help treat patients with radiation and develop new nuclear physics diagnostic tools
- Develop practical solutions for healthcare: strengthening blood vessels, designing and building pacemakers, developing exoskeleton.
- Construct, evaluate and certify the safety and accuracy of devices including MRI, CAT, bone density scanners; and X-ray machines.



- Create software for medical equipment, instruments/imaging systems.
- Discover structure and function of biological systems (tissues, cells and cellular components down to single molecule level – DNA, RNA, lipids and proteins).
- Help doctors treat cancer or understand body composition and metabolism. (nuclear medicine)
- Plan therapies, determine acceptable radiation doses, evaluate images and maintain equipment. (diagnostic radiology and radiation oncology)
- Determine cardiac pressure and flow and pacemaker functioning. (cardiology physicists)

Questions?

If you have questions about Biomedical Physics, or about any of our other offerings in the Physics Department, please contact us at:

UNO Physics Department - (402)554-2511
unophysics@unomaha.edu
cas.unomaha.edu/physics

Biomedical Physics Jobs at a Glance

Biological physicist -

employed by research labs, biotechnology companies. (Job growth at 19%, average salary \$81,480)

Medical physicist -

employed by hospitals and medical centers
(Job growth at 13%, average salary \$76,980)

Biomedical engineer -

employed by biomedical companies, universities, hospitals.
(Job growth at 27%, average salary \$86,960)

Medical Imaging Specialists -

employed by hospitals and medical centers
(Job growth at 14%, average salary for Medical Imaging Specialist in Omaha, NE is \$71,236)

Source: Bureau of Labor Statistics

Did you know?

Students looking for a fiscally prosperous post-college life can find one by pursuing a degree in STEM. PayScale.com’s “Best Undergrad College Degrees By Salary” report reveals that engineering, computer science and physics are top three on the list of highest-paid bachelor’s degrees.