

New physics degree offered

Fresno State to have program in biomedical physics.

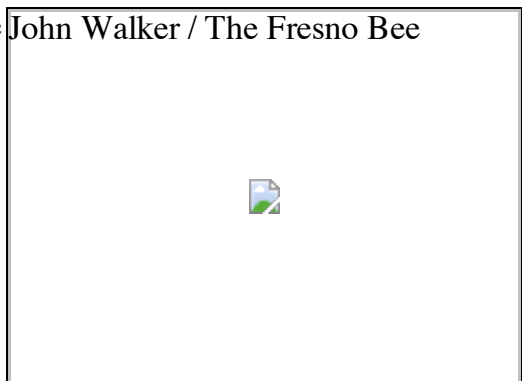
By Jim Steinberg / The Fresno Bee

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Fresno State is offering a new biomedical physics program to prepare undergraduates for careers and for further graduate studies at the frontier of physics and medicine.

Physics professor Amir Huda and adjunct professor Christopher Njeh, a medical physicist at Saint Agnes Medical Center, say the program will address the growing need for physics proficiency in medicine. Doctors treat patients, but physicists increasingly care for machines doctors need to treat patients.

The program at California State University, Fresno, focuses uses of physics in diagnosis, management and treatment of disease. The new discipline also recognizes the need to expand the number of highly trained medical technologists in the San Joaquin Valley, which lags other state regions in the number of such experts. To Huda's knowledge, Fresno State is the first American university to offer undergraduate majors in biomedical physics. The new offering



Fresno State physics professor Amir Huda, right, is launching a new biomedical program for undergraduates, along with adjunct physics professor Christopher Njeh, also a medical physicist at Saint Agnes Medical Center's Cancer

coincides with Fresno State's commitment to spark technological and Center. academic development that improves economic and living standards John Walker / The Fresno Bee in the Valley.

Huda and Njeh said interested students must be committed to mastering difficult courses in mathematics, physics and biology before enrolling in this study. The compensation for difficult years of studying medical physics can be high-paying jobs that help adults and children who suffer life-threatening conditions, such as heart disease and cancer. The median income for students who have no job experience but earn a master's of science degree in biomedical physics is \$90,000, Huda says. After 29 years in the field, the median income approaches \$200,000.



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Those holding doctorates can earn considerably more.

Fresno State does not offer the graduate degrees now, but Huda and Njeh say the bachelor's will prepare students for master's and doctorates elsewhere. Some students may return later to hospitals and other medical jobs in the Valley.

Professor Amir Huda can be reached at (559) 278-8427 or by email at ahuda@csufresno.edu.

The Fresno State program is operating under a five-year, \$650,000 grant from the National Institute of Mental Health and the National Institute of Biomedical Imaging. "Once our students graduate, they will have no problem getting jobs," Huda says. "We want to create the future neuroscientists and medical physicists for the nation."

The demanding nature of the undergraduate major at Fresno State helped Huda persuade the funding agencies to finance stipends, rising from \$1,000 to \$2,000, for six students. The clinching argument was that these studies are so demanding that students would not have time outside their classes for jobs to help pay their costs.

The program includes three areas: radiation therapy, nuclear medicine and magnetic resonance imaging. Students admitted to the program will learn about such tools as radiation therapy, used to treat malignant tumors; nuclear medicine, employing injected "radiopharmaceuticals" to diagnose and treat disease; and magnetic resonance, which produces interior imaging without ionizing radiation.

The new program is designed for students who show the capacity and intent to become medical physicists. It is not intended as a substitute for a pre-medical curriculum, and may, in important respects, be more difficult, Huda says.

Robert Levine, associate dean of Fresno State's College of Mathematics and Science, praises Huda's success in winning the grant and beginning the new medical physics program. The effort took two years. CSU campuses' research, in general, focuses on applied research, which results in practical uses.

"Amir demonstrates how cutting-edge developments in physics can be brought into applied settings in health," Levine says. "This is a very important new direction. It is a wonderful opportunity for those aiming for higher degrees. Meanwhile, they are training people to go into health jobs and applied biology."