

SPECIAL EDITION

Another 1st for APSU

University to get Governor's School in Computational Physics

Thanks to Austin Peay State University's outstanding physics faculty and the growth and success of the department's innovative program in computational physics, APSU is making plans to host the Governor's School in Computational Physics beginning in Summer 2008.

Included in the administration's amendment as a recurring line item of \$150,000, the Governor's School in Computational Physics is APSU's first Governor's School.

Begun in 1985 by then-Gov. Lamar Alexander, Governor's Schools are programs designed specifically for gifted and talented high school students. Each school provides challenging and intensive learning experiences in specific disciplines.

"The Governor's School in Computational Physics will bring the best and brightest to APSU," said Dr. Jaime Taylor, chair of the APSU Department of Physics and Astronomy.

"This Governor's School will make the state's top students aware of the high quality of academics at Austin Peay—not just in our department, but as a whole."

Although computational physics has been in use since the 1940s, it only recently has emerged as the

third branch of physics, along with experimental and theoretical physics.

Computational physics combines physics, computer science and applied mathematics to provide scientific solutions to complex problems. Computational physics has been applied to almost all science and engineering fields, such as protein folding, aerodynamic design and testing, atmospheric science and material science.

According to Taylor, the use of computational physics will allow high school students to tackle realistic problems without requiring them to be fluent in advanced mathematics.

With the inaugural class, 30 high school students will be selected for the five-week Governor's School in Computational Physics at APSU. Working with two outstanding physics professors and five college-level mentors, the students will be broken down into teams, with each team required to design its own experiment and develop a computational model for its final project.

The curriculum for the Governor's School in Computational Physics at APSU will consist of two courses, with each participant earning a total of six hours of college-level credit.

The students will take several field trips to computational research centers, such as the Oak Ridge National Laboratory's National Center for Computational Sciences and NASA's

Marshall Space Flight Center.

Working with the faculty in the department, President Sherry Hoppe submitted the initial proposal to the state for a Governor's School in Computational Physics in Fall 2006—shortly after the department became one of the nation's first programs to implement a required course in Computational Methods.

Also in 2006, the department was selected as one of only five (out of 120) departments nationwide to submit a paper, titled "Computations in Undergraduate Physics," for a special issue of the prestigious journal, *Computers in Science and Engineering* (CiSE).

The APSU Department of Physics and Astronomy has become recognized across the state and nation for recruiting, retaining and then placing physics students in prestigious fellowships, graduate assistantships and doctoral programs.

In 1999, the department had nine majors and averaged one graduate a year in 1995-2000, with a small fraction continuing on to graduate school.

By 2005-06, the department had enrolled more than 60 physics majors. Since 2004, it has graduated 20 students. Nineteen of the 20 have attended graduate school or been accepted to graduate school in such fields as medical physics, biophysics, astronomy, mechanical engineering, electrical engineering, systems/indus-

trial engineering, material science and atmospheric science. Two chose to work full time while attending graduate school, one as an engineer at Trane and the other as a Navy nuclear officer.

A 2006 Congressional report, "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future," emphasized the need to increase the number and proportion of U.S. citizens earning bachelor's degrees in science, technology, engineering and mathematics.

And, according to Taylor, Gov. Phil Bredesen has been adamant about developing "rigorous, no fluff" science and mathematics educational programs. "And our physics program is known to be a rigorous program that produces successful graduates," Taylor said.

Taylor expressed appreciation to Hoppe for her tireless work in securing the Governor's School for Computational Physics at APSU.

Hoppe thanked the local legislators—Sen. Rosalind Kurita, Rep. Joe Pitts, Rep. Curtis Johnson and Rep. Phillip Johnson—for their strong support of the Governor's School at APSU.

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Taylor