2005 FacultyAward for Teaching goes to Dr. Doug Harper

Joy Baum, courtesy office of media relations

Dr. Douglas Harper, Professor of Physics, was recently awarded the Faculty Award for Teaching in Ogden College of Science and Engineering, and went on to receive the University Faculty Award for Excellence in Teaching. Harper said he tries to incorporate what he considers to be the best features from the many excellent physics professors he has taken courses from and worked with professionally at Western and Vanderbilt University as he shapes his own teaching philosophy.

In a letter of support, former student Joel Veitschegger, wrote “Dr. Harper was always ready to meet with me outside of class, even at the end of the day when he had obviously been meeting with others for hours. He also regularly monitored the message board on his web site, even late at night, looking for and answering questions we had about our homework.”

Joshua James, a former student and Ogden College Scholar, wrote, “Dr. Harper had by far the most influence on my undergraduate career, and he is the reason why choosing Western Kentucky University as my college is a decision I will never regret. He should be the standard that all other professors look to when trying to be an effective teacher to their students.”

Physics Education Research
Scott Bonham

The focus of Physics Education Research (PER) is to conduct scientific research on how students learn (or don’t learn) physics, and to apply the insights gained to improve physics instruction. There are two main thrusts in PER at WKU: revision of the algebra-based introductory physics courses, and web-based graphical responses.

Since Dr. Scott Bonham came to WKU in 2001, he has been revising the first semester of College Physics, the algebra-based course for students in technical areas. This has involved moving the course to an integrated lecture-laboratory format and replacing all the laboratories with computer-based guided discovery laboratories. An important element of teaching problem solving is the technique of Cooperative Group Problem Solving, where students work through context-rich problems in groups, having been explicitly taught an expert-like problem solving approach. In the fall of 2004, Dr. Bonham incorporated Just-in-Time-Teaching to help students come to class better prepared and provide ongoing feedback using open-ended questions answered on the web before class that are graded on effort.

Dr. Gordon Smith has begun revising the second semester of College Physics into the same format. Drs. Bonham and Smith, along with Dr. Wieb van der Meer and Dr. Christopher Bassey have just applied for a National Science Foundation grant to revise Physics and Biophysics, the life science oriented algebra based physics course. This revision will incorporate techniques developed based on research and bring an even stronger biological and health science focus to the course.

The second area of work is developing Java applets and exercises that allow students to respond to exercises on the web by making graphs or various types of diagrams. These applets, the Physics Applets for Drawing (PADs), feature point and click simplicity, an internal grading engine, and a large number of customizable parameters so that the same applet can be used for a wide range of exercises. The applets, more information and many exercises can be found at http://www.wku.edu/pads.