

Students
jump into
research

Into THE Lab



MPEE participant Karla Kossler watches Dr. Kimberly Espy simulate a test used on infants.

Written by Karen Carlson • Photography by James Hawker

Dr. Kimberly Espy will be getting some help with her NIH project studying tobacco and pregnancy from medical student Karla Kossler, who in May completed her first year at SIU School of Medicine.

"I wanted the experience in clinical research," Kossler says. "I wanted to learn more about how smoking affects prenatal development because I plan on specializing in OB/GYN. And I wanted to find out more about something I care about." She is helping Dr. Espy review charts, interview mothers and test babies. It's rewarding for Dr. Espy, too. "It's fun working with the medical students and showing them the overall process of research," she says.

The mutually beneficial partnership was formed through the Mentored Professional Educational Experience (MPEE) at SIU School of Medicine. This optional, eight-week elective allows students who have completed their first year of medical school a chance to dig in to medical research with a mentor by their side. From traditional laboratory research to clinical studies, MPEE areas have included basic sciences rehabilitation, social work, health education, public health and academic medicine.

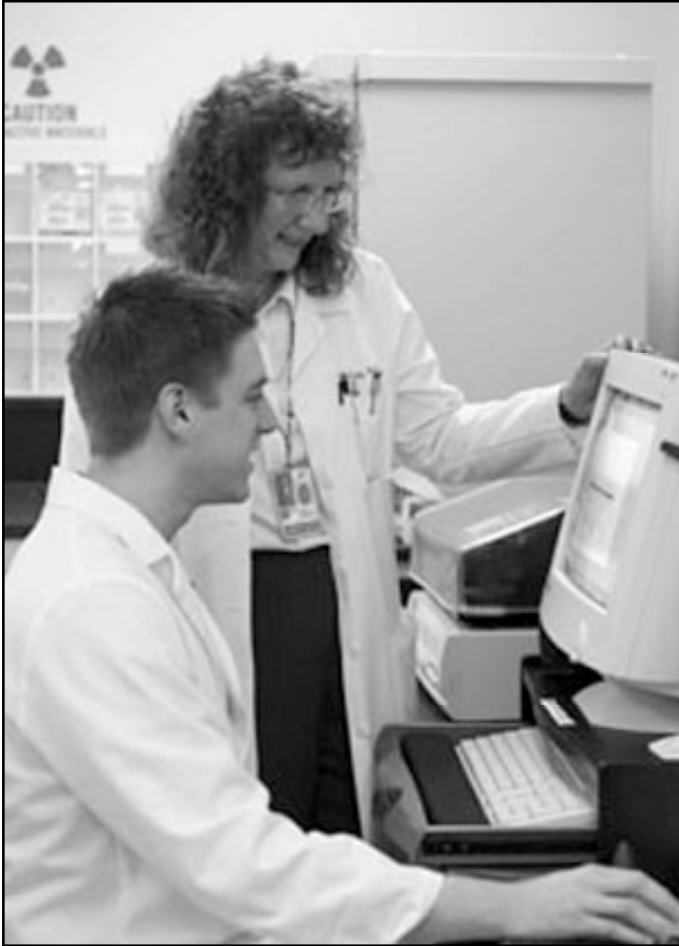
Past projects have covered topics such as viral replication, heart rate variability, effects of genistein and estrogen, complementary and alternative medicine, mul-

tle acute stroke syndrome and so much more. Students have worked in Carbondale, Springfield, and across the country in South Dakota, California and Maryland and even overseas in places like Guatemala.

The program was established four years ago by J. Kevin Dorsey, M.D., Ph.D., now dean and provost of SIU School of Medicine. Eric Niederhoffer, Ph.D., took over as director of the program in 2001. "It provides opportunities for students to explore clinical and basic science research," Dr. Niederhoffer says.

That's a real plus for first-year medical students who have an eye for research as they pursue their medical degrees. Working with a faculty mentor, students can develop their own projects or develop an offshoot of their mentor's work, acquiring a basic understanding of bench or bedside research. The goal is to encourage students to conduct effective research in the basic or clinical sciences.

Specifically, students learn project development and grant writing techniques, as well as put in some quality time in the research laboratory. With their mentor's help, students develop a well-defined problem written as a detailed research question, design a method for investigating the question and establish goals and objectives. For the next eight weeks, they immerse themselves in research.



Gregg Sydow works with Mary McAsey, Ph.D.

An average of about 10 percent of first-year students participate. Funding for the projects comes from the School of Medicine, with a maximum stipend of \$2,000. "This program helps students who are very interested in research," Dr. Niederhoffer says.

And it's not just the research experience that has made the program a success. Past students have reported that the program has helped ease the transition between the first year in Carbondale and the remaining three years in Springfield. In addition to the three credit hours the students receive, the MPEE committee works with the Department of Student Affairs to include a note about the student's project in his or her dean's letter, which is included in fourth-year students' applications for residencies, an added distinction to a young resume.

Mentors are the life's blood of the program, helping students develop their proposals and working with the students to ward off major problems. Approximately 30 faculty members in Carbondale and Springfield volunteer to serve as mentors.

"The mentors help students focus their projects so they get useful information in the eight weeks," Dr.

Niederhoffer says. "The students can continue the projects if they desire."

Mentors evaluate the student's performance, and each year, MPEE students present their findings during an annual research symposium in the fall.

This year's crop of MPEE participants promises to be as talented as ever, tackling projects ranging from developing a treatment plan for malaria in The Gambia, West Africa, to studying clinical predictors of mild traumatic brain injury at Northwestern Memorial Hospital. Nine students are participating in the program, which will be completed in August.

Student Gregg Sydow is working with Assistant Professor Mary McAsey, Ph.D., studying the effects of ovarian steroids on neurons and glia in the brain at the Department of Obstetrics and Gynecology research laboratory in Springfield. The project is examining how estrogen and progesterone affect the expression of neuronal and glial proteins.

The long-term goal of this research is to develop a selective estrogen receptor modulator to exert a protective effect on the brain without the other physical side effects that are normally associated with estrogen. It could protect against Alzheimer disease, Parkinson disease and stroke. Dr. McAsey has been working on the project for four years with SIU Associate Professor Robert Struble, Ph.D., Department of Neurology.

For his MPEE project, Sydow is extracting proteins from mice and performing western blot analyses, an extension of the work done by medical student and former MPEE participant Lindsey Jackson. Jackson won first place for her MPEE project at the 14th annual SIU Research Symposium (See page 2).

Though he had no experience in a medical lab, Sydow was interested in Dr. McAsey's project. "I lost one grandfather to Parkinson disease and another to Alzheimer disease," he says. "Plus, the MPEE program is a great opportunity to learn research and help the researchers."

"Gregg brought great skills to the laboratory," Dr. McAsey says. "He has great observational and analytical skills and excellent manual dexterity. His questions are insightful and, although he is still becoming familiar with laboratory research, it is evident that he will excel in this project." She agrees that the MPEE program is mutually beneficial. "Students are an important part of the research expansion we're undergoing at SIU." ■