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Faculty Awards for Excellence in Graduate Teaching: Michael Stein

By Steve Koppes
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Professor Michael Stein played guitar in a band before completing his doctoral degree at Stanford University in 1984 under the guidance of Paul Switzer, an old car buff.

Stein, a Neil Young fan, flew back to the Bay Area last fall to attend Switzer's retirement party, at which he sang Young's song about a car, "Long May You Run" as well as a retirement blues song Stein wrote for Switzer. "I think events like that are always better with a little music," said Stein, the Ralph and Mary Otis Isham Professor in Statistics.

His work as a member of the graduate student faculty at UChicago is far less musical, but he seems to have struck a similarly resonant chord nonetheless.

Stein annually teaches "Design of Experiments," a course required of all graduate students in statistics. It is part of a yearlong sequence in applied statistics that has become a hallmark of the UChicago graduate program in statistics.

"I've been teaching it for a long time, and it has a bit of a reputation, and obviously in some ways favorable," he said with a laugh, then added, "more favorable after it's over than while it's going on."

The applied statistics sequence is designed to engage students in thinking carefully about data and understanding that working with it involves more than just plugging numbers into a computer. "You actually need to think about the context of data and think about how that relates to how you analyze it, and that's something that takes a lot of care," Stein said.

He tells his students that creating narratives about data can help them to better understand the underlying phenomena. "You need a story to organize your thoughts. Being able to do that is an important part of being a good data analyst and a good scientist."

Statistics classes frequently focus on inference issues, which deal with drawing conclusions from data based on statistical models. Stein agrees that inference issues are important, but modeling issues are even more important, and quality of data matters more than all else.

"Good data often makes the analysis fairly elementary, and bad data can't usually be saved by doing some fancy analysis," Stein said. "People keep hoping that it will. I don't think that works very well."

Stein has mentored 18 doctoral students to their graduation during his career. Approximately two-thirds of them have pursued academic careers and now teach at institutions such as the University of California at Los Angeles, the University of Illinois and Florida State University. Many others have entered the private sector, working for such firms as McKinsey & Company and IBM.

He currently supervises seven doctoral students, which is a lot for one person, but two probably will finish soon. Plenty of work seems to await them.

"There was a time when people were imagining that artificial intelligence would make a statistician in a box and we wouldn't actually need statisticians any more," Stein said. "I think people have largely abandoned that, so we're not obsolete yet."

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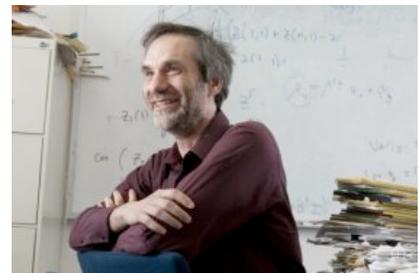
Michael Stein

Photo by Beth Rooney

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