

## **New Math course at UCSD stretches students' imaginations**

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### **NEW MATH COURSE AT UCSD STRETCHES STUDENTS' IMAGINATIONS**

Students enrolling in a new math course at the University of California, San Diego may be surprised to find the room stocked with everything from Legos and Tinker Toys to puzzles and brightly colored balls. The "toys" are props for a new approach to teaching mathematics as part of a course entitled "Geometry and The Imagination."

Rather than forcing students to memorize formulas out of a textbook, the course will encourage them to explore geometry as it relates to the world around them, said Peter Doyle, a UCSD professor of mathematics who will co-teach the course with Frederic Bien and Michael Freedman.

"The geometry students learn in high school is 1,000 boring facts about triangles," Doyle said. "That's not even the beginning of the story."

Instead of listening to lectures, students will work together in small groups on hands-on projects. Typical projects include such things as determining the 17 basic geometric designs that make up wallpaper patterns, analyzing bicycle tracks to determine whether the bicycle was coming or going, and building plastic models resembling twisted strands of DNA.

In addition to helping to hold students' interest, Doyle believes having students work in small groups fosters cooperative rather than competitive learning. Avoiding the traditional lecture format in which students are passive absorbers of information also encourages them to think problems through for themselves, he said.

A leader in alternative teaching approaches, Doyle already has co-taught "Geometry and The Imagination" at several other universities as part of an effort to improve mathematics nationwide. He introduced another innovative course at UCSD last year called "Chance." The goal of that course was to arm students with the basic skills in probability and statistics needed to survive in the scientific age, including everything from interpreting the reliability of public opinion polls to analyzing scientific findings reported in the daily press.

Students addressed such topics as the accuracy of AIDS tests, possible links between cancer and environmental hazards, DNA fingerprinting and playing the odds at the casino and in the stock market.

Class activities included participating in Coke and Pepsi taste challenges and selecting stock portfolios by throwing darts at the financial pages of The New York Times.

Doyle hopes the non-traditional classes will show students that math is not just something they have to endure to get a degree.

"Math is one heck of a lot of fun," he said. "It is the way it is presented that is the problem -- somehow they never get to the good stuff."

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