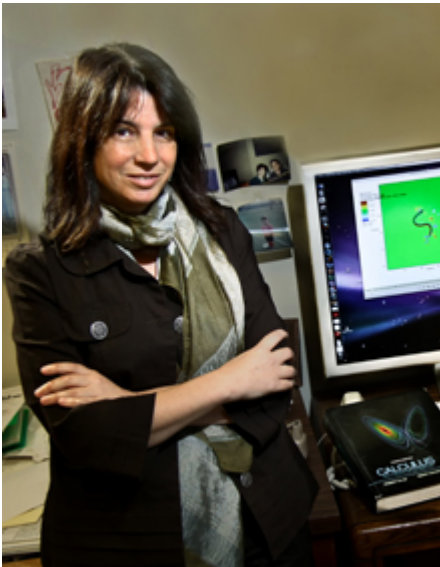


## Giving Math a Boost

June 21, 2011 12:00 PM Arthur Nead  
anead@tulane.edu

Tulane students will receive a boost in training in the mathematical sciences thanks to a new \$1.4 million grant from the National Science Foundation led by mathematician Lisa Fauci.



Students in a new interdisciplinary program led by mathematician Lisa Fauci will be trained in experiments, theory and computation. (Photo by Guillermo Cabrera-Rojó)

The five-year project will place undergraduate, graduate and postdoctoral students as well as faculty from the departments of [mathematics](#) and [biomedical engineering](#) together in interdisciplinary research groups. The focus of their projects will be on the behavior of biological fluid systems and on developing mathematical models for biological systems ranging from the motion of single-celled organisms to the functioning of airways in human lungs.

This project builds on nearly 20 years of interdisciplinary collaboration between the two departments, much of it within the Center for Computational Science, according

to [Fauci](#), the Pendergraft Nola Lee Haynes Professor of Mathematics, who is principal investigator of the grant.

“A focus of my own research is trying to understand how cells and microorganisms move within their natural domain, a fluid,” says Fauci. “For instance, when mammalian sperm make their way through the reproductive tract, they are encountering chemical cues within a dynamic fluid environment within complex geometries.”

Biomedical engineers are focused on applications and experiments, while mathematicians work on the theory underlying these systems, developing numerical algorithms to investigate them, Fauci says. “Of course, there is significant overlap between these, and students in this interdisciplinary program will be trained in experiments, theory and computation.”

Other leaders of the team are Donald Gaver, Alden J. “Doc” Laborde Professor and Chair of Biomedical Engineering, and Ricardo Cortez, Pendergraft William Larkin Duren Professor in Mathematics and director of the Center for Computational Science.

One reason Tulane was successful in the grant review process, says Fauci, “is our history of excellence in mentoring” and in creating research groups involving undergrads, grad students, postdocs and faculty.