

Center for Applied Mathematics 2004 - 2009: Synopsis

The Center for Applied Mathematics (CAM) was created to support the development and application of mathematics at the University Florida. Its mission and goals are to:

- Support top quality research in cross-disciplinary, applied, and applicable mathematics.
- Facilitate collaborative research projects with researchers from other disciplines and from industry. These collaborations should produce significant practical and theoretical results while providing research and training opportunities for graduate students.
- Strengthen the graduate programs in all aspects of mathematics, both in recruitment and training.
- Provide the computational infrastructure necessary for mathematics research. Specifically, acquire hardware and software to support mathematical experimentation, algorithm development, and the numerical solution of mathematical problems arising in wide-spread applications.

The development and application of mathematics is an essential part of any research university. This research is centered in the Mathematics Department with significant activity in a variety of disciplines and departments. CAM is the only entity at the UF solely dedicated to the growth and development of cross-disciplinary mathematics.

In the last five years research and external funding in applied and interdisciplinary mathematics has increased significantly. CAM members within the Mathematics Department now form the core of major groups in Mathematical Biology and Medical Imaging as well as contributing significant efforts in Algorithmic Randomness, Operator Theory, Topological Fluid Mechanics, Numerical Analysis, Combinatorics and Group Theory. Mathematicians are either a PI or co-PI on successful grants involving computer information science and engineering, zoology, ecology, statistics, mechanical and aerospace engineering, and the medical school.

CAM has played a significant role in building and maintaining mathematical excellence at the UF by providing vital support for student and faculty research. By being situated in the Mathematics Department and directed by two active, NSF-supported researchers, CAM is ideally situated to provide well-targeted and cost-effective support to emerging and existing research.

Advances in mathematics do not require a great deal of physical infrastructure, but rather depend on sustained interactions between experts with overlapping or complementary interests. Thus CAM has made the strategic decision to focus its resources on providing numerous moderate size awards to support faculty and student travel to conferences as well as research visitors to the UF. We also support the annual CAM Colloquium, visits to the UF by prospective graduate students, conferences at UF, and computational infrastructure.

The Center for Applied Mathematics is a University of Florida type III center. It is thus solely funded by a portion of the grant overhead generated by Mathematics Department faculty who are thus members in the center. During the reporting period there were 21 members of the Center whose returned overhead came from 38 grants. There is no FTE-funded support to CAM.

In keeping with the increase of external funding, CAM plans to continue its regular programs of conference, travel, and speaker support while beginning a new program of support for longer term research visitors. As this report is being written we are finalizing plans for CAM to purchase \$10K of hardware for a major upgrade of the Graduate Student Mathematical Computation Lab including 3 high performance stations for larger scale computations.