



Vision

To propel Rice into the forefront in addressing the grand challenges in biosciences and bioengineering

Mission

To promote cross-disciplinary research and education encompassing the biological, chemical, and engineering disciplines

Institute Goals

- To enhance innovative research across disciplines with seminars, symposia, and seed funding
- To create unique educational opportunities for undergraduates and high school students
- To advance post-doctoral and graduate student success via training programs, workshops, and other events
- To partner with other institutions and centers, including the Texas Medical Center, Gulf Coast Consortia, and industry



Institute of Biosciences and Bioengineering

Although founded two decades before Rice's Vision for the Second Century was unveiled in 2006, the Institute of Biosciences and Bioengineering ("IBB") serves as the prototype for the University's current aspirations. IBB members have established dynamic programs and seized opportunities to gather key personnel in interdisciplinary collaborations in the course of research excellence. Most notably, IBB has served as the catalyst for interaction and interdisciplinary collaboration between faculty members, other Rice institutes, the Gulf Coast Consortia, and the local biotechnology industry.

Led by faculty member Professor Jennifer West and Executive Director Dr. Stacey Kalovidouris, IBB's faculty membership has recently expanded to encompass more than 90 members, representing every department in the Wiess School of Natural Sciences and Brown School of Engineering. In addition to its strong research focus, IBB has excelled in the area of K-12 outreach and educational programs for Rice students.

Professional development workshops for both graduate students and post-doctoral fellows expand their understanding of what is expected of them and what they must bring to their career opportunities. Undergraduates and high school students are able to experience what bioscience and bioengineering research and careers entail first hand by working alongside graduate students and post-doctoral fellows.

IBB also holds an annual symposium to focus on different interdisciplinary areas each year, and a poster session is held where students can present their work. These events attract a large audience and provide students with presentation experience in preparation for future study and a variety of career paths.

Collaboration with Rice's Smalley Institute and the Houston Museum of Natural Science are also elements of IBB's activity. Together these institutes have created the planetarium-format film, *Microcosm: Virtual Voyage Through the Human Body*, featuring nanoparticles as diagnostic and therapeutic agents. This film engages students in the excitement of modern scientific exploration.



Institute Facts

- 90 current members
- IBB was founded in 1986.
- IBB members represent faculty from every department in the Schools of Natural Sciences and Engineering at Rice.

DID YOU KNOW?

- IBB has a strong focus on training with two programs, one sponsored by the National Science Foundation and one by the National Institutes of Health.
- IBB will be providing support for the new Howard Hughes Medical Institute undergraduate program, "Beyond Traditional Borders," that focuses on Global Health Technologies.
- IBB Director Jennifer West and a team of collaborators from Baylor College of Medicine received NIH's first and only Quantum Award in 2006.
- IBB faculty Bonnie Bartel, Jennifer West, and Rebecca Richards-Kortum were named Howard Hughes Medical Institute Professors for their efforts to integrate research and education.

For More Information

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IBB holds a variety of events to expand the expertise of our faculty and students. For example, "Mock NIH Study Sections" are designed to enhance the understanding of faculty and students of what happens when grants are reviewed and how best to craft their applications to leverage that process effectively. This experience can make the difference in whether a grant is funded or not.

IBB offers two Summer Academy programs for high school students from South Texas Academy of Science and Milby/YES. Activities include a variety of lectures, tours, field trips, a communications workshop where students write and edit college application essays, and a research experience paired with NIH and IGERT graduate student. This program receives rave reviews from students and teachers alike.



IBB has an extremely successful innovation seed research grant program sponsored by the Hamill Foundation. Designed to develop new ideas to the point where they are mature enough to compete for funding, this program has generated significant enthusiasm and has already resulted in grants far exceeding the seed funding.

As an example of the quality of faculty engaged in IBB, this year Chemical and Biomolecular Engineering assistant professor and IBB faculty member Michael S. Wong received a 2006 Hershel M. Rich Invention Award for his group's one-minute "shake-and-mix method" that makes organic/inorganic hybrid microcapsules out of nanoparticles, for applications ranging from foods and catalysis to pharmaceuticals.

With the increase in activity and coverage of IBB, future efforts will focus on creating two new centers within its jurisdiction (the Center for Evolution and the Center for Synthetic Biology), promoting research, improving the experiences of undergraduates, graduate students and post-doctoral fellows, and continuing to strengthen its partnerships both on and off campus. This organization is at the intersection of science and engineering and at the nexus of the expanding interface with all thing "bio" and the traditional disciplines. It is an exciting time with a multitude of opportunities. Over the coming years, IBB will aggressively continue the current efforts to promote research, improve the experiences of undergraduates, graduate students, and post-doctoral fellows, and partner more effectively with the Texas Medical Center, Gulf Coast Consortia, and industry.