

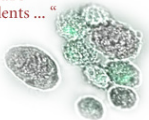


The Institute of Biosciences and Bioengineering at Rice University

**The Institute of Biosciences and Bioengineering (IBB) at Rice University is an interdisciplinary endeavor, supported by more than 90 faculty from all departments in science and engineering. The IBB:**

- **supports interdisciplinary research and education,**
- **fosters ties with the Texas Medical Center,**
- **creates partnerships with industry,**
- **promotes the translation of research, and**
- **facilitates strong research and training programs**

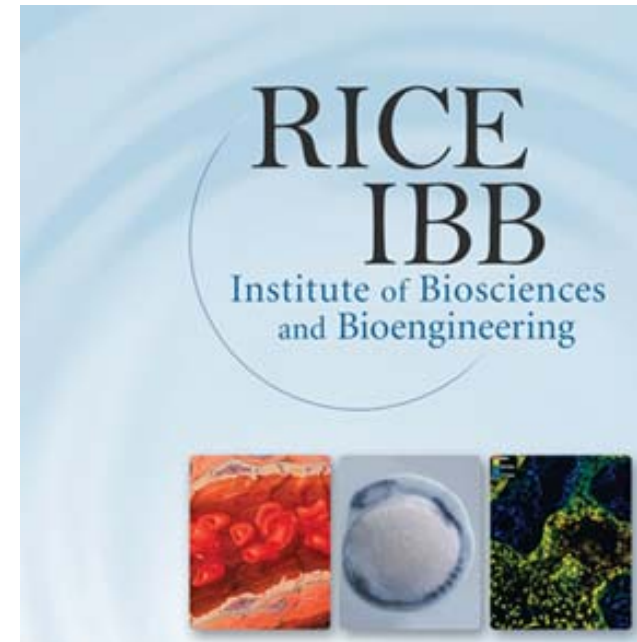
“... a unique **educational** environment in which to **prepare** students ... “



To apply for this summer undergraduate internship program for engineers and physicists please visit our website at <http://ibb.rice.edu> for more information. Women and minorities are encouraged to apply. Applications must be received by February 13, 2009.



Rice University  
Institute of Biosciences and Bioengineering  
MS-144, P.O. Box 1892  
Houston, TX 77251-1892



A Summer Undergraduate  
Program for  
Bionanotechnology





*“We are not students of some subject matter, but students of problems. And the problems may cut right across the borders of any subject matter or discipline.”*

*– Karl Popper*

Welcome to the Institute of Biosciences and Bioengineering at Rice University! This Institute hosts the nationwide HHMI-funded summer undergraduate internship in bionanotechnology for engineering and the physical sciences. The goal of this program is to expose students to modern biology.

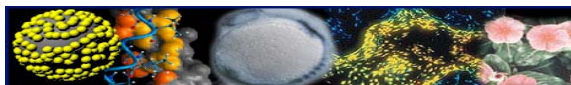
This summer undergraduate program features:

- **An intensive biology lecture and laboratory course teaching cell culture, basic molecular biology, and protein biochemistry,**
- **Cutting-edge research in bionanotechnology,**
- **Special seminars and career development workshops,**
- **Competitive stipends and up to \$500 in travel support, and**
- **On-campus housing.**

Immersion of students in a cross-discipline is considered the most effective means to facilitate interdisciplinary research. Students who participate in this program should overcome the communication barriers in interdisciplinary collaborations, as they will be highly conversant in the biological sciences. We hope that you will join us in the discovery of Bionanotechnology!



Jennifer L. West, Ph.D.  
Past Director, Institute of Biosciences and Bioengineering  
Chair and Cameron Professor of Bioengineering  
Rice University  
HHMI Professor



At the beginning of the program, the interns will learn basic laboratory safety, reagent preparation, aseptic technique and mammalian tissue culture. The interns will then be involved in teaching labs where they will have hands-on experience with cutting-edge techniques. Throughout these studies, students will receive extensive feedback on their communication skills.

Following this intensive introduction to biology concepts and laboratory practices, students will apply their new knowledge as they engage in interdisciplinary research in Bionanotechnology. Opportunities in laboratories will be matched to each student depending on his/her interests.



Some examples of ongoing bionanotechnology research that would be included in the summer program include:

- **photothermal ablation of tumors using near infrared-absorbing nanoparticles,**
- **cellular and molecular imaging using nanoparticle contrast agents,**
- **monitoring gene expression *in vivo* using nanoprobes,**
- **biomimetic nanofibrous scaffolds for tissue engineering, and**
- **nanomechanical studies of motor proteins.**



Please visit our website at <http://ibb.rice.edu> for more information about this HHMI-funded summer undergraduate research program.

### Seminars



During the research internship, students will also participate in a weekly seminar series featuring talks from leading experts in Bionanotechnology.

We will have several lunch meetings to discuss topics such as career options, applying to graduate school, and issues associated with being part of an interdisciplinary team.

### Lunch Meetings



### Symposium



At the end of the program, we will hold a research symposium, where interns will present posters on their research.

### On-Campus Housing

Students in the program will receive on-campus housing at Rice University.



### Competitive Stipends and Travel Assistance



In addition, students in the program will be eligible for competitive stipends and travel assistance.

**Contact IBB (<http://ibb.rice.edu>).**  
**Applications are due by February 13, 2009.**

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