# Cain Project

*The Cain Project's logo symbolically embodies those facets of communication that are fundamental to science and engineering practice.*

The shape of an attentive ear signifies the value of keeping an open mind while listening carefully and empathetically to others.

The eye depicts the power of graphic illustrations and pictorial elements to emphasize, summarize, and display relationships.

The speakers' lips suggest the force of eloquence, brevity, and clarity praised by commentators from ancient Athens to this day.

The colorful stylus represents the power of the written word (by pen or computer) in advancing ideas and influencing others.

Rice University | MS 340 | P.O. Box 1892 | Houston, TX 77251-1892

# VIEW

## a new approach to communication instruction

> LOOK INSIDE RICE UNIVERSITY at a not-so-quiet revolution. Thanks to generous support from the Gordon and Mary Cain Foundation, The Cain Project in Engineering and Professional Communication is preparing Rice science and engineering students to lead through excellence in communication.

As engineers and scientists, Rice graduates will face new challenges because of rapidly changing communication and information technologies, the globalization of business, and increased emphasis on team work and accountability. The Cain Project ensures that students meet these challenges equipped with skills for articulate, persuasive communication–written, visual, and oral.

Through collaborations with science and engineering faculty, the Cain Project integrates communication instruction into many existing courses. As students advance in their majors, principles of communication are reinforced and elaborated. In addition, students can attend workshops and receive individual coaching. Graduate students can participate in thesis writing groups as they complete major research projects. The role of the Cain Project is to coordinate and foster the best possible instruction in all courses so that through many learning opportunities students will be ready to lead through excellence in communication.

*Biochemistry graduate student Jane Smith explains research results.*

Faculty discussions of curriculum and teaching drive Cain Project activities. Above (l to r): Associate Dean of Engineering Bart Sinclair talks with Professor Janet Braam and Laboratory Coordinator Dr. Dave Caprette of Biochemistry.

# A Window

## on creating leaders through communication instruction

> CAIN PROJECT workshops and one-on-one coaching prepare students to present their work in a variety of professional situations. Each year faculty and graduate students from the Department of Computer Science report on trends in computing research and showcase their projects for executives from the department's corporate affiliates. Executives have praised the high quality of presentations and posters students have prepared with the Cain Project's coaching.

Graduate students in the Department of Biochemistry and Cell Biology give seminars each week. A Cain Project instructor reviews students' PowerPoint graphics and discusses a videotape of the presentation with the student afterward. At conferences and at job candidate presentations, these biochemists are prepared to capture attention for cutting edge work going on in Rice University research laboratories.

First-year students and sophomores studying introductory biology– which includes such topics as molecular genetics, behavior, ecology, biodiversity, and evolutionary processes–discover "the big picture" by finding original scientific articles behind science reports in the news. Each student must recommend future work or further analysis of data the researchers collected. How to frame an analysis and recommendation can be the key to gaining funding and team support. These students are learning that, as one Rice graduate put it, "sometimes leadership is a matter of disagreeing agreeably."

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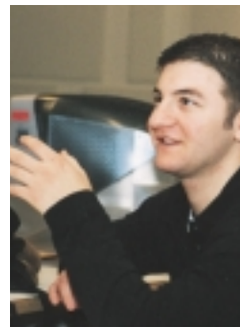


# A Window

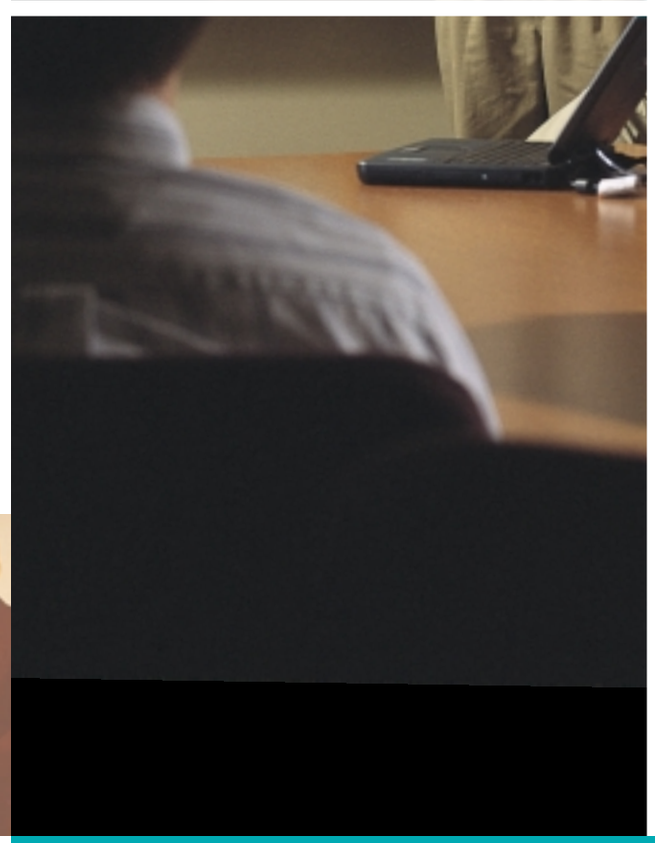
on creating leaders through experiences in international and business communication

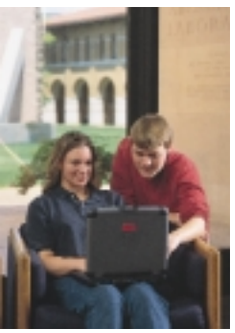
> BIOENGINEERING STUDENTS pushing ahead in the newest engineering field have been learning communication skills since the major opened in 1999. Four years of work involve students in every aspect of communication from interviewing, writing, and designing graphics for written and oral assignments, leading up to venture capital business presentations for new project funding during their capstone course.

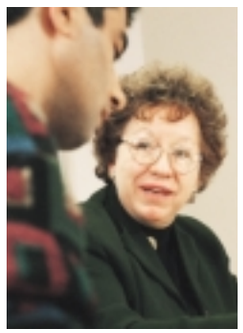
The Cain Project helps students prepare to start their own companies as well as lead in established firms. Science and engineering students with great new ideas learn to write early-stage proposals and give short venture capital financing presentations in a one-credit course that can augment any science or engineering course.
The Project also supports Ideas to Action, a student entrepreneurship club, and helps maintain Rice's membership in the National Collegiate Inventors and Innovators Alliance, which sponsors an annual competition for faculty/student teams.

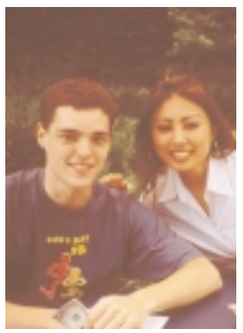
Graduate students from all science and engineering departments have participated in thesis writing groups that meet weekly to discuss aspects of drafting, editing, and defending their thesis or dissertation projects. Participants have won "best paper" awards in professional conferences and top jobs in industry.

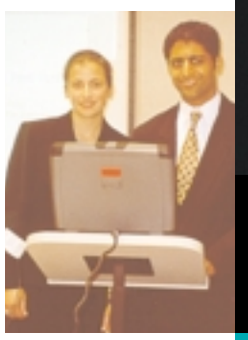
Chemical engineering senior design teams compete in industry simulations each year with written design feasibility studies and oral proposals to corporate executives. A series of assignments integrated into their courses prepares students to explain design principles and industrial processes to a variety of audiences and government agencies. Many assignments involve designing refineries and chemical plants to be built and operated in other countries. These introduce students to collaborating and communicating with engineers from other cultures.

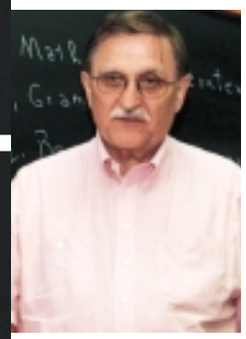








Preparing students for business and international careers is a focus of senior courses. Above: Chemical engineering students Eric Lee and Crystal Ramon present a design proposal to faculty members Ken Cox and Walter Chapman and a business audience.

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Cain instructors help scientists and engineers design and present posters for poster sessions and professional conferences. Above, Brian Chen explains the project featured on his poster to faculty member Dan Wallach and other students.

# A Window

## on creating a project leadership team

> TWO ADVISORY COMMITTEES, drawn from the Rice faculty and from the professional world, guide the program. This advisory process smoothly incorporates the learning of practical, professional communication skills into academic work. Professor John Polking, Department of Mathematics, and Associate Dean of Engineering Ahmad Durrani have served as chairs of the Faculty Advisory Committee. Mr. Ed Segner, President and Chief of Staff of EOG Resources, heads the External Advisory Committee.

Faculty in the fourteen departments who collaborate with the Cain Project form a network of committed instructors determined to send students fully prepared into industry and not-for-profit organizations. Special events such as the "Outside the Box" Lunches give faculty opportunities to talk to one another about the assignments and ideas they use in their courses.

*"Outside the Box" Lunch speaker Nate Dean shares ideas with other faculty.*

> THE CAIN PROJECT staff has formed a research team that collaborates on research projects involving industry best practices, impact of technology, and assessment of instructional approaches and learning outcomes. Instead of teaching the traditional required course, the Project teaches inside existing science and engineering courses, creates new special-interest short courses and workshops, and offers one-on-one coaching. Project instructors balance instruction and research in this new method of changing students' readiness to articulate technical insights and work with others.

For an even closer look, view the Project web site at http://www.owlnet.rice.edu/~cainproj/ or write to the Cain Project in Engineering and Professional Communication Rice University MS 340, P. O. Box 1892, Houston, TX 77251-1892.


Cain Project instructors have formed a research team that monitors instructional outcomes and investigates other research questions and communications best practices.