



A birds eye view of Clemson's beautiful campus.

Clemson University

Chemical & Biomolecular Engineering

Fall 2006

New Look for the Department

Over the summer an ad-hoc strategic planning committee was formed to undertake some rather important issues. Just like any organization, the Department of Chemical & Biomolecular Engineering needed to formulate an image, focus on specific issues most important to the success of the department, complete a SWOT (strengths, weaknesses, opportunities, threats) analysis, along with putting a mission statement, vision statement, and departmental values into writing.

Creating an image recognizable to those internal and external to the Department was a very tedious, yet important, process. Because branding the Department is so important, many versions were created and the image in the center of this newsletter was the winning logo.

The logic behind the design is that it is first and foremost, a simple and easily recognizable image. The orange moon-like portion has two functions: to represent the state of SC as the moon is found in the SC state flag and because it represents an arrow-looking figure. The second representation is critical because it is important to the department to have a leading, forward-thinking, chemical engineering program. Purple lettering was chosen because it is the second color of choice for Clemson and because it does demand attention.

A number of issues were raised from the SWOT analysis. Now that the Department is more aware of the internal and external issues that affect the success of the Department, a new proactive approach to all issues is being taken.

One of the most important parts of an organization is its mission statement, what it stands for and finds most important.



The ChBE Mission Statement is as follows:

To prepare students for highly competitive employment, graduate and professional placement and life-long learning by teaching technical fundamentals, problem solving, communication and leadership skills with attention to business principles, societal issues, and ethics, and by anticipating and leading the future of chemical and biomolecular engineering through cutting-edge research, scholarship, and service.

An additional important area that deserves a good amount of attention is the vision statement. Where does the ChBE Department want to go?

The ChBE Vision Statement is:

The Department of Chemical & Biomolecular Engineering at Clemson University will be a nationally ranked top twenty-five department in 10 years.

This goal may not seem very challenging, but in actuality, it is an extremely ambitious goal. As a department moves up in the rankings, the more and more difficult it is to progress even more. As you might already know, the national rankings are not only based upon statistics, but also reputation. By participating in national events, such as the AIChE National Conference, and creating a professional image, the Department is rigorously trying to improve the reputation of the Department nationally because statistically, we are already at the top-20 level.

Lastly, the departmental values were decided upon by multiple audiences including the faculty, staff, alumni, undergraduate students, and graduate students. These core values are at the heart of this Department:

- integrity and professionalism
- collegiality
- high-quality teaching
- personalization
- dedication
- personal responsibility
- high-quality scholarship
- impact, achievement, recognition

Please send your comments, as we welcome any and all suggestions and opinions, to layla@clemson.edu.

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Note from the Chair

As 2006 comes to an end, I cannot help but reflect on all of the changes that our Department has endured. Positive changes such as, the new Dean of the College of Engineering & Science, Clemson moving to a top-30 public institution, our new departmental logo, two new faculty members (**Prof. Guiseppi-Elie** and **Prof. Chris Kitchens**), facilitating ChBE alumni gatherings, and new grants will do nothing except improve our Department. I am very proud to be a part of all of the improvements and changes that have and will happen in the future and I invite all of you to participate as well.



New Dean Appointed to CES

In May 2005, **Provost Doris Helms** appointed **Esin Gulari** as the Dean of the College of Engineering and Science effective July 2006. Prior to her appointment, Dean Gulari served as professor and chair of the Chemical Engineering and Materials Science Department at Wayne State University. Provost Helms states, "Dr. Gulari has great vision and demonstrates both creativity and clarity of purpose with regard to her plans for our College of Engineering and Science." In addition to her role as the Dean, Gulari has also been appointed a member of the ChBE faculty.



Gulari received her B.S. in Chemical Engineering from Robert College in Istanbul, Turkey in 1969. She then received her M.S. and Ph.D. from California Institute of Technology in Chemical Engineering, in 1970 and 1973 respectively. Gulari spent two years at the State University of New York at Stony Brook as a Postdoctoral Research Associate. From 1979 on, Gulari was a member of the Wayne State University faculty in the Chemical Engineering and Materials Science Department, where from 1993 through 2000 she served as the department chair.

From 2000 to 2004, she served at the National Science Foundation (NSF) where she was the director of the Chemical and Transport Systems Division, as well as the Acting Assistant Director for the Engineering Directorate from September 2001 to April 2003.

Although Dean Gulari is very busy with her new administrative role at Clemson, her research interests remain in materials processing, supercritical fluids, and polymer nanocomposites.

Gulari's responsibilities include overseeing 15 academic departments with over 5,000 students, 23 undergraduate degree programs, 45 graduate degree programs, and 11 research centers. Dr. Steve Melsheimer, associate dean for undergraduate studies and professor emeritus to ChBE, and Dr. Larry Dooley, associate dean for research and graduate studies work directly with Gulari.

The Department of Chemical & Biomolecular Engineering would like to formally welcome Dean Gulari to the Clemson Family. We look forward to her leadership as the new Dean of the College of Engineering and Science.

Please Mail Card Enclosed

It is very important to the Department to stay in touch with alumni. An email list is in the process of being created to notify alumni of upcoming events. Information provided from alumni, especially from the cards received, will go into this database. If you filled out the card from the Fall 2005 newsletter and are not sure if your information has changed, just return it with you current information. Every Fall newsletter hereafter will include this option to provide current information.

We will not share your information with the University or any other entity unless you specify that you would like your information shared. As always, even though not many emails are sent out, you will always have the option to no longer receive emails from the Department. We look forward to hearing from you!

Academic Award Recipient

Tara M. Hudak has been recognized as the 2005-2006 recipient of the Donald F. Othmer Sophomore Academic Excellence Award which is awarded to the sophomore with the highest academic standing. Tara's prize is a copy of Perry's Chemical Engineers' Handbook courtesy of AIChE. Congratulations Tara for all of your outstanding hard work!



Clemson University Department of Chemical & Biomolecular Engineering

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Email Address: _____
Employer (for gift matching): _____
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ACCOUNT NUMBER For MasterCard	
CARDHOLDER'S NAME	Authorization Code

Please **PRINT** above information exactly as it appears on your card.
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(Signature)

Maker authorizes the bank issuing the VISA or MasterCard identified on this item to pay the amount shown and promises to pay the amount stated herein to such bank subject to and in accordance with the agreement governing the use of such card.

The enclosed envelope is provided for your convenience and in order to direct your gift to the appropriate address. If paying by check, please make your check payable to **Clemson University Foundation** and write **ChBE** on the **for** line. Thank you for your support.

Or make a contribution online at <http://www.ces.clemson.edu/chemeng/alumni.html>

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Goodwin Travels to Thailand

For nearly a month, **Prof. Jim Goodwin** took a multi-purpose trip to Thailand. "I was there as a guest of a number of universities and to collaborate on a joint research project," says Goodwin. His trip was fully funded by the Royal Thai Government. Although Goodwin visited a number of universities, he was primarily located at Chulalongkorn University, the university that is considered to house the top engineering school in Thailand. The Department of Chemical & Biomolecular Engineering is in the process of developing a long-term relationship with Chulalongkorn for the purpose of facilitating an exchange of faculty and students.

Prof. Goodwin's trip to Thailand also gave him a chance to be reunited with 4 of his former PhD students: **Dr. Joongjai Panpranot** - Department of Chemical Engineering, Chulalongkorn University (PhD '02), **Dr. Amornmart Sirijaruphan** - Department of Chemical Engineering, King Mongkut's University of Technology Thonburi (PhD '04), **Dr. Bunjerd Jongsomjit** - Department of Chemical Engineering, Chulalongkorn University, and **Dr. Kandis Sudsakorn** - Department of Chemical Engineering, Kasetsart University. Although Drs. Jongsomjit and Sudsakorn did not receive their PhD's at Clemson, they did spend over two years concluding their PhD research at Clemson.

Dr. Panpranot has been awarded the 2006 Young Scientist Award by the Foundation for the Promotion of Science and Technology under the Patronage of His Majesty the King. In addition to teaching and conducting research, she has been actively consulting the Thai petrochemical industry in catalysis. Her department chairman, **Dr. Piyasan Prasertdam**, has also been recognized by the same organization, receiving the 2006 Outstanding Scientist Award. Prof. Prasertdam and Prof. Goodwin have worked together for a number of years.



Class of '66 Reunion



On Homecoming weekend 2006, the class of 1966 gathered for their 40th reunion. They were brought together through the vigorous effort of **Victor Alberto Lopez Lindo**. By sending letters along with photographs of their 25th reunion, Victor was able to reunite the class of 1966 and **Dr. Chris Alley**. The discussions went from current careers to classmates, classrooms that look exactly the same as they did 40 years ago, and even reminiscing about the life and lectures of Dr. Charlie Littlejohn. It was a wonderful gathering on a beautiful day.

If you are interested in gathering together your fellow classmates, contact Layla Hakamiun at layla@clemson.edu. The Department would like to help in any way possible!

Alumni Corner

Let Us Know...

Do you have something that you would like to announce to your fellow ChE's? Did you get a promotion? Get married? Have a baby? Just send an email to layla@clemson.edu and include the details and any images that coincide with the announcement.

Alumni Reunion

If you graduated in a year that ends in "7" (such as 1997, 1987, etc.), keep your eyes open for an invitation in the mail! The Department will be facilitating a reunion for all of these classes over the weekend of April 20-22nd and would like as many ChBE alumni to attend as possible!

Clemson is a Top-30 Institution

Clemson University has reached its highest position to date in the annual "U.S. News & World Report" college rankings and is now a top-30 public institution. For 2007, Clemson ranks 30th among the nation's 162 public doctoral-granting universities, a move up from 34th last year.

The latest report shows improvements in key educational areas, such as class size, quality of students, and graduation rate. Last year, Clemson reported fewer classes with 50 or more students and more classes with less than 20 students. The graduation rate rose from 72 percent to 75 percent, versus 57 percent for all institutions.

In addition, Clemson's engineering program is ranked 60th among engineering schools granting doctoral degrees.

Clemson is also recognized as having an "outstanding example of an academic program believed to lead to student success" in its Writing Across the Curriculum program.



"U.S. News & World Report" rankings are based on statistical measures, such as student SAT scores, graduation rates and faculty salaries, as well as a subjective measure of academic reputation. The list of public doctoral-granting institutions ranks universities across the country that offer a wide range of undergraduate majors as well as master and doctoral degrees.

For a complete listing of Top-50 public institutions, go to: <http://www.clemson.edu/usnewsrankings/usnewstop50.htm>.

ACS Recognizes Senior Graduate Student

Nripen Singh, PhD candidate, has been invited to participate in the Excellence in Graduate Research Symposium in March 2007, which is sponsored by the ACS Division of Polymer Chemistry (POLY). Last Fall, Singh was recognized as one of only two recipients of the Outstanding Graduate Researcher Award, awarded by the College of Engineering and Science. Because of his recognition at the college-level, he will be giving a 25 minute talk about his research. Congratulations Nripen!



Ethanol from Coal

You might be familiar with making ethanol from corn. Such ethanol is currently being used extensively in the Midwest as a component in gasoline. This provides a "green" component to the gasoline being sold, provides another market for an agricultural product, and is useful as an octane enhancer. Ethanol also offers exciting possibilities since it exists in liquid form at room temperature yet can be readily reformed to produce hydrogen for fuel cells; however, there is much discussion as to whether ethanol from corn is energy efficient. In addition, there is a limit to how much corn can provide ethanol for transportation fuel since it is a major source of human and animal food.

Since the U.S. has extensive deposits of coal, the U.S. Department of Energy (DOE) is interested in being able to make ethanol from coal that could then be distributed and stored using the nation's existing infrastructure prior to being used as a source of hydrogen. Professors **Jim Goodwin** and **David Bruce** in the Department of Chemical & Biomolecular Engineering at Clemson have recently received a grant from the DOE in collaboration with LSU and Conoco-Phillips to develop new processes for the selective synthesis of ethanol from synthesis gas produced from coal. The work at Clemson will be funded at the \$1 million level over a 3-year period.

AICHE National Conference 2006

The Department of Chemical & Biomolecular Engineering participated fully in this year's AIChE National Conference in San Francisco, California. Many of our faculty members and graduate students presented their research and findings. In an effort to assist Clemson in reaching the goal of becoming a top-20 institution, the Chemical & Biomolecular Engineering Department has expanded and improved the graduate recruitment process. One of the major strides was setting up a booth at the Graduate School Fair at the AIChE Conference, featured to the right. A number of potential graduate students stopped by to speak with **Prof. Chris Kitchens** about pursuing a graduate degree at Clemson. The most promising candidates were invited to a reception in the department's suite to meet additional faculty members and graduate students.



On another evening at the conference, the Department hosted an alumni reception. A number of alumni came to the suite and socialized with each other, the faculty, and current graduate students. The Department is very pleased with the turnout and hopes to facilitate other alumni gatherings in the future. A great way to find out if the Department is hosting an event is to check out the website or to return the enclosed card.

Thank you to all who attended the reception. We appreciate your continued support and look forward to seeing you again soon, hopefully with some new faces!

In the August 7, 2006 edition of C & EN, a brief article was published about the starting salaries for Chemical Engineers. The median salary for chemical engineers is as follows:

BA/BS - \$54,000

MS - \$62,200

PhD - \$83,000

This year offers to our undergraduate students to date range from \$54,000 - \$72,000!

2006 REU Students from France

During summer 2006, two students from Ecole Nationale Supérieure de Chimie de Clermont-Ferrand in Clermont-Ferrand, France completed a 10-week research project with **Prof. Jim Goodwin** and **Prof. Amod Ogale**. Both students are currently completing a Bachelor's degree in Chemistry-Chemical Engineering.

Valérie Lizé studied with **Prof. Goodwin** and completed a project entitled, "Catalysts for the synthesis of biodiesel." Much of Valerie's supervision came from graduate student **Kaewta Suwannakarn**. Valerie hopes to get a job in the field of trade and become a commercial engineer.



L to R: Eric Quin, Ambre Dupont, Prof. Amod Ogale

Prof. Ogale, with **Eric Quin**, supervised **Ambre Dupont** during her stay at Clemson. Ambre conducted research on corn zein with her project, "Preparation and characterization of flexible zein films." Ambre said, "I discovered [at Clemson] the research and it was a great experience." Although Ambre is not quite sure where she would like to see her career go, she does like the idea of living and working in another country besides France.



L to R: Valérie Lizé, Kaewta Suwannakarn, Prof. Jim Goodwin

At the completion of the 10-week research, Valérie and Ambre participated in a collective REU Poster Symposium at the Madren Center where they presented their research. Since their return to France, a number of Valérie and Ambre's schoolmates have applied to participate in the 2007 REU program with the Department due to their positive experience at Clemson.

Chemical & Biomolecular Engineering Family Album

Alumni Reception



Prof. Doug Hirt, graduate student Jeffrey Zhang, and Keisha Walters, MS '01 PhD '05 listen intently to Prof. Mark Thies.



Walter Chapman BS '83 and Ariel Chialvo PhD '88



Amol Janokar PhD '05, chatting with Prof. Andrew Metters and Betsy Metters.

AICHE Shrimp Boil



Milliken and Clemson representatives.



Juniors Erin Breloff and Sarah Hooker enjoying the Shrimp Boil!



Milliken with ChBE students, faculty, and guests.

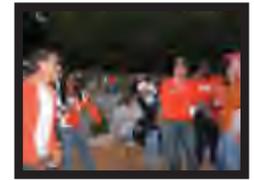
Homecoming Drop-In



The Class of '01 gathered for a 5th year reunion at the Homecoming Drop-In.



Alumni finishing their conversations before attending the Homecoming game when the Clemson Tigers defeated the GA Tech Yellow Jackets!



Prof. Mark Thies conversing and laughing with ChBE alumni.