DEPARTMENT OF CHEMICAL ENGINEERING

BRIGHAM YOUNG UNIVERSITY

CHEMICAL ENGINEERING

2009 NEWSLETTER

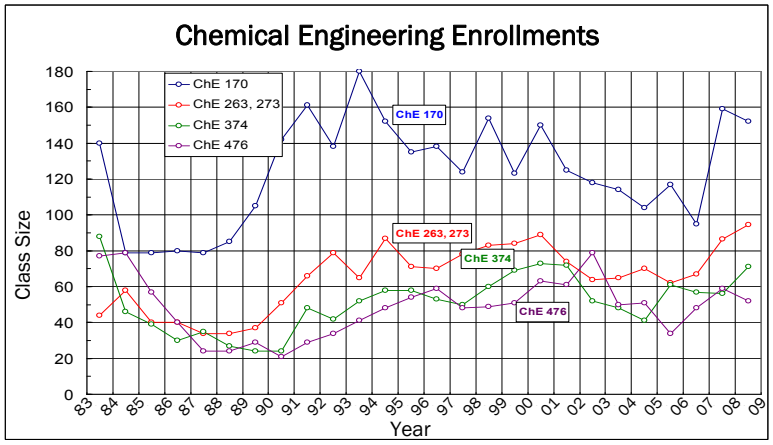
WELCOME FROM THE CHAIR

Richard L. Rowley

Dr. Richard Rowley

It is a pleasure for me, on behalf of the faculty and staff of the Chemical Engineering Department at BYU, to greet you and introduce the department's Fall newsletter. I hope this newsletter finds you well and happy, and that it brings a smile or two to your face as you remember many good times with good friends at BYU. Two of our annual department events once again reminded me of the remarkable people that our alumni are and the many friendships that have been forged within the walls of the UO lab. At our annual AIChE spring banquet this year, some of the extracurricular achievements of graduates were mentioned in addition to their impressive academic honors. Some may think that the rigors of the chemical engineering program preclude other opportunities, but this is far from true as our students also excel in their personal lives in a range of activities such as music, athletics, service, and other areas (yes, including video gaming and guitar hero expertise). Our annual alumni banquet impressed upon me the goodness of our alumni and their remarkable accomplishments for good and service in the world. We are so pleased by the generous contributions that have been made to set up a department endowment to provide student scholarships and needed support for the department. Thank you, thank you for your kind generosity. We invite all who are able to join us at the next alumni banquet coming up as part of Homecoming for a wonderful evening and time to renew acquaintances.

"Goodbyes" are part of growth and life. This year we said goodbye to 47 graduates and a handful of graduate students who "enter(ed) to learn" and now "go forth to serve." Some interesting statistics from this group are: 84% had a mentored learning experience with individual faculty members, 39% are continuing in graduate or professional schools, 26% are employed in oil-related companies, 21% in chemicals, 6% in nuclear, and 3% are employed in the mining industry. While the economy has weakened the demand for new chemical engineers, the starting salaries for our graduates remains strong with the average starting industrial salary last year being $74k/year. "Hellos" are also a part of our university life as we greet another incoming class of approximately 140 new students. I thought you might like to see a 25-year history of enrollments in our core classes, so I have included a plot showing this history. (Who but an engineer would include a graph in their newsletter!?) The majority of you will be able to see your own period of time and compare it to today's enrollments.



Erma Bombeck is quoted (Reader's Digest, Aug, 2009, p 183) as saying "When your mother asks, 'Do you want a piece of advice?' it is a mere formality. It doesn't matter if you answer yes or no, you're going to get it anyway." In much the same vein, I pass on "advice": I hope you will continue to be involved with the department. This can take many forms such as participation in alumni activities, financial contributions to the department scholarships and needs (this can be done on-line through the department web site), and support of department initiatives that will further enrich the educational experience of our students. I hope that you will consider personally letting us know of your challenges and successes because you continue to be an important part of what the BYU Department of Chemical Engineering is all about.

INSIDE THIS ISSUE:

THREE NEW PROFESSORS JOIN THE CH EN FACULTY

Dr. Morris Argyle

Dr. Morris Argyle

Dr. Morris Argyle grew up in Idaho Falls, ID and received his B.S. degree in Chemical Engineering from Brigham Young University in 1990. In 1998, Argyle began graduate school at the University of California at Berkeley, where he received his Ph.D. in Chemical Engineering in 2003. In 2003, Argyle became an Assistant Professor in the Department of Chemical and Petroleum Engineering at the University of Wyoming and later an Associate Professor and served as Department Head in 2008-2009. He has taught classes on material and energy balances, process simulation and engineering economics, portions of senior design, kinetics and chemical reaction engineering, fluid dynamics, and an introduction to engineering computing. Dr. Argyle's research interests lie in determining the structure/function relationships of heterogeneous catalysts using spectroscopic techniques, plasma reaction engineering, coal gasification, and new methods for carbon dioxide capture and storage. He met his wife, Stephanie, who is also a chemical engineer (University of Michigan, 1991), while working at Exxon. They were married in 1998 and now have five children.

Dr. David Lignell

Dr. David Lignell

Dr. Lignell is from the Salt Lake area. He graduated from Taylorsville High School, and attended the University of Utah, graduating with a B.S. in Chemical Engineering in 2001. He worked for Reaction Engineering International on a range of consulting and simulation projects related to combustion and energy technologies. Dr. Lignell returned to graduate school at the University of Utah in 2003. He did much of his research at the Combustion Research Facility (CRF) at Sandia National Laboratories in Livermore, California. His research centered on tera-scale direct numerical simulation of soot formation and flame extinction and propagation in nonpremixed flames. He received his Ph.D. in 2008 and worked for one year as a Post Doctoral researcher at the CRF on modeling turbulent reacting flows using new multi-scale simulation techniques. Dr. Lignell joined the BYU Ch En Department in January 2009 and is teaching computer design methods, fluid mechanics and combustion. He and his wife Jennifer have three sons, Isaac, Andrew, and Luke. A new baby daughter arrived September 9, 2009. They are currently living in Pleasant Grove.

Dr. Brad Bundy

Dr. Brad Bundy

Dr. Brad Bundy is excited to return to BYU as a new faculty member in the department. Brad is originally from St. George, Utah where he graduated from Snow Canyon High School and Dixie College. Following a mission to Hiroshima, Japan, he continued his education at BYU in Chemical Engineering and graduated summa cum laude in 2004. While at BYU, Brad met his wife Becky Bundy (B.S. Management: Finance Emphasis, 2004), and they now have 3 children. Recently Brad completed his Ph.D. in Chemical Engineering at Stanford University. His research interests include protein engineering, metabolic engineering, and protein mega-complex characterization relating to energy, vaccine, drug delivery, and catalysis applications.

CHEMICAL ENGINEERING ALUMNI SOCIETY

Message from the Alumni Society Chair—Jeffrey Lindsay

Alumni Chair Jeffrey Lindsay

My appreciation of the blessings of education at BYU magnified greatly when I had the privilege of sending some of my own children there. Today some of the most praised and best funded universities act almost as if their primary mission were to promote dangerous temptations and moral hazards to the young people they receive. How fortunate we are to have a campus where high moral values are encouraged and lived while academic excellence and intellectual curiosity are also fostered. One can master the knowledge of the world without having to abandon eternal truths and true values.

A non-LDS friend of mine recently visited the department and was tremendously impressed with the high moral values of the students and the kindness and academic excellent of the faculty. This university and the Chemical Engineering Department offer opportunities and blessings that many others need, not just LDS students. It is unique and something to be proud of. The more I learn about the accomplishments of my fellow BYU alumni and the Department, the more I am proud of this educational gem. But it needs our help to fulfill its mission and extend these opportunities to more students.

We'll learn more about some of the ways BYU chemical engineers (student, faculty, and alumni) have changed the world for good during our annual Homecoming Banquet on Oct. 23. I hope you'll be able to join us in person, or catch the online broadcast of the event that we are planning.

Meanwhile, please join with your fellow alumni on LinkedIn.com using the BYU Chemical Engineering Alumni Group. A shortcut to the group is http://tinyurl.com/yalumni. Please join us there and help us network, mentor, and share information.

Alumni Society Makes Scholarships Possible

The BYU Chemical Engineering Alumni Society has a goal of raising $100,000 in 2009 to provide scholarships for chemical engineering students at BYU. We've got a long ways to go still, but we can do it. Will you please support this cause and make a tax-deductible donation?

Join us in making generous donations to support scholarships in the Chemical Engineering Department. Making a donation is easier than ever now thanks to an online service that has been established. By going to http://give.byu.edu/engineer, you can make a donation on the spot by credit card, or make a pledge and then receive a follow-up letter shortly thereafter to help you send in your check. If you can donate even a few dollars, it will help. A few hundred will help more, and please don't stop there if you can give more. This is a time when generosity is needed more than ever.

Whatever you can afford, your gift will make a difference for the rising generation of students from all over the world. These funds really do make a difference and help students while also helping the Department and the University fulfill their missions. Let's help the Department bless the lives of many more talented professionals, enabling them to transform the world for good in many ways.

Alumni Society Scholarship Recipients

Thanks to the generous donations from our alumni we have been able to award several scholarships. Fall semester 2009 scholarship awards were given to Joonsuk Lee and Tara Pandey. During the 2008-2009 academic year scholarships were awarded to Mark Jensen and Alex Romriell.

In addition to the alumni society scholarships, Tom and Holly Holst generously funded a scholarship award to Amber Waite and Bismarck Odei.

I am very grateful for your generosity & kindness. I promise to do my best as a student… I believe that I can make our society better with hard work & preparation. ~Joonsuk Lee, Alumni Scholarship recepient

ENGINEERS WITHOUT BORDERS

Making a Difference

This past May, a group of seven BYU students and a Chemical Engineering professor, Dr. Randy Lewis, embarked on a trip to Accra, Ghana to implement projects they had worked on through the entire school year. The Global Projects class researched, tested, and prototyped their designs for schools and villages in Minya and Tarkwa throughout the Fall and Winter semester then culminated their efforts with in-country implementation of their designs.

The group consisted of mechanical, electrical, civil, and chemical engineers who worked on three projects: a windmill, a solar water purification system, and a bio-filter toilet. In Accra, students were accommodated by a local engineer and inventor, Kweku Anno, who owns his own business and machine shop.

Kids in the village loved seeing the windmill erected by their school next to their electricity-generating merry-go-round. The engineers in Ghana were also impressed with the solar water purification system that destroys E. coli and other harmful bacteria within thirty minutes. Tests and construction were done with the bio-filter toilet as well.

The projects were a huge success, and they achieved a point where the engineers in Ghana can sustain them. "We learned much more about engineering projects, as well as made good friends there. Hopefully we changed people's lives for the better," says one student.

Dr. Randy Lewis watches as students test the permeability of sand.

Students construct solar dishes, which help the locals to purify their water.

BYU and local students gather around the new windmill.

HOMECOMING 2008

If you missed last year's Homecoming program and banquet, you missed a treat. We had ChEn alumni from all through the years seated according to graduation year, which helped to bring class-mates together. It was inspiring to honor John Ahn (class of '66) as the Outstanding Alumnus and to hear a little about his life accomplishments in his profession and in the Church. It was also inspiring to hear our speaker, Richard Heaton, Director of the Provo Missionary Training Center, describe and show recent missionary videos and other internet presentations produced by the Church. It was a great night.

John Ahn receives the award for Outstanding Alumnus.

The speaker, Richard Heaton, shares an inspirational presentation.

Students and faculty enjoy a nice meal in the Wilkinson Student Center.

CH EN PROFESSORS RECEIVE PRESTIGIOUS AWARDS

Dr. Thomas Fletcher

Dr. Larry Baxter

At the 2008 University Conference two of our professors received prestigious University Awards.

- Dr. Thomas H. Fletcher was awarded the *Karl G. Maeser Excellence in Teaching Award*. This award honors faculty for outstanding teaching accomplishments, and nominations are submitted by the recipient's faculty peers. Recipients are selected for teaching rigorous courses that demand high expectations of their students. Their courses are designed around comprehension, understanding and reasoning. The recipients' teaching is significantly influenced by their devotion to the mission and values of the university and society.

- Dr. Larry L. Baxter received the *Wesley P. Lloyd Award for Distinction in Graduate Education*. This award honors a member of graduate faculty who has distinguished herself or himself by exemplary performance in teaching at the graduate level, superior mentoring and supervising of graduate students, and exemplary service to the University in the creation, implementation and supervision of graduate program.

THE UO LAB GETS A FACELIFT

Many of you will recall days spent in the UO lab. We have and are giving the UO a face lift. Phase 1, completed a year ago, removed the process control center platform (affectionately called "the rameumptum") and moved a couple of walls to create much cleaner lines for the main part of the lab, a new projects laboratory for support of student innovation work, and better accommodations for some of the new experiments that Mike Beliveau is bringing on line. Phase 2 of the UO remodel will be complete shortly to provide new paint, a drop-in ceiling, and some new experiments for the larger area of the UO lab. Additional changes within the department and its facilities are available through the department website (http://www.et.byu.edu/cheme/) where you will find interesting news clips of department events as they happen.

Left: Although not completely finished, the UO Lab has new rooms that are fully functional.

Right: A new suspended ceiling is installed.

WE HAVE T-SHIRTS!

BYU Chemical Engineering t-shirts, water bottles, and pens are available for purchase online through the BYU Bookstore/eStores. Go to byubookstore.com to order your ChEn merchandise now!

The new BYU Ch En T-Shirt.

Pens...

And water bottles, too!

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The Department of Chemical Engineering is dedicated to keeping in touch with our alumni.

If you have moved recently or changed any of your contact information, we would appreciate an email to us at cheme@byu.edu letting us know. Please include your full name, mailing address, phone number, email, and year of graduation.

You may also update this information yourself at the ChemE website: http://www.et.byu.edu/cheme/.