April, 2005

Department Introduces Bioengineering Degree  
By Joshua T. Meyer

The University of Missouri – Rolla is introducing an interdisciplinary undergraduate degree in Bioengineering. This program is the first Bioengineering program offered by the University of Missouri system and is expected to be available to students starting in the fall semester of 2006. This program requires seventeen new courses from five different campus departments. The courses will be taught by Chemical & Biological Engineering, Chemistry, Biology, Electrical & Computer Engineering, and Mechanical & Aerospace Engineering.

All students in the program will take a core set of bioengineering courses, but different tracks will also be available to the students. These include Bioprocessing, Biomolecular, Bioinformatics, Bioelectrical, and Biomechanics tracks that can be chosen for a desired specialty. This program is to prepare the graduate in areas of manufacturing, biomedical applications related to diagnostics and diagnostic imaging, biomedical applications related to devices and prosthetics, biomaterials and biocompatible material systems, and biomolecular design and modeling.

The major market for the initial graduates will be biotechnology firms, the pharmaceutical industry, and graduate programs in bio-related areas. Medical school, biomedical programs, and graduate programs in bioengineering will also be common outlets for the bioengineering graduates.

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These Hallowed Halls
By Ernesto Rodriguez

I am a senior, set to graduate this May, and I am ready to head out into the field. Exploring all the possible places I could end up has been interesting so far. Even though I am looking forward to the opportunities ahead of me, I can’t help but feel like I am leaving behind a great deal.

It has been an honor and a privilege to serve as the President of UMR’s AIChE chapter this semester. I believe my term as President has benefited me in many more ways than just a line on my resume. I’ve been able to get to know the students and the faculty of our department better and I think it has helped me to realize a closeness that is unique to our department.

The Chemical and Biological Engineering department is one of the smaller departments on campus. There are only about two-dozen students in my graduating class. Most of our classes are offered only once a semester, so students in our department end up sharing almost all of their classes together. We all have had the same professors, helped each other out on the same homework, and suffered through the same exams. There is no greater bond formed than the bond of two students sitting for hours in the computer lab trying to figure out how to get Matlab to stop dinging errors or figuring out why the equations in Mathcad are all red.

Even off campus our department is united. In the rare times I stay out past my bedtime I can find Chem E’s in number at the Grotto, El Maguey’s, or at a party held by one of our friends. No other major at UMR can find so many of its students who know each other well, having fun in one place.

I feel like I am going to depart from an extended family. There are so many things I am going to miss. No longer will I have to suck in my gut and squeeze between the aisles in 140. I will never hear such glorious melody as the pressure regulator in G-35. I won’t have to duck into a bathroom to avoid a three-hour conversation with Kevin Martin or hear as chivalrous of a deed as the story of Dr. Book sparing the life of a sunbathing, hog nosed snake. I will especially miss all of my classmates that I have been able to hang out and joke around with.

Good-bye Schrenk Hall.
“C’mon, time to get up…” Silence ensues from my spouse, who is soundly asleep. “Hey *insert endearing adjective here*, we’ve got about 10 minutes before we need to leave.” Several days a week we have this ritual. Eight minutes after that wake up call he’s showered, dressed and waiting by the door while I’ve yet to grab my papers, books, and miscellanea for the day. He looks at me. “Are we ready to go?”

Ah, married life. As fellow seniors in the chemical engineering department at UMR, our morning routines are simplified by the common goal of Schrenk Hall. We go to our respective classes, and as the day continues, work, extracurricular activities and events mix, mingle and parry death blows at one another until, more often than not, midnight rolls around before it’s off to bed to do it all over again. Sound mind-numbingly familiar? There are some who can’t imagine adding marriage to the hectic pace of college life. College is, however, the time where most students are looking deeply at their life goals, including finding the person that they’re going to spend the rest of their life with.

What is so interesting in how married students live? It’s like once that boundary has been crossed; those who are married are foreign creatures whose lives take on something new and different. Now, I’m not saying there aren’t changes in how things work, but in some respects it’s like living with a roommate. You have someone who shares your space, you have to get used to the little idiosyncrasies.

There are benefits to taking the plunge prior to graduating—you combine incomes and living space, so there is not as much strain on your measly college budget. There are other unique perks to this arrangement. The most obvious—if you need to miss a class that you share, notes are guaranteed. You have someone to bring you lunch when you have five classes in a row. You have a personal alarm clock to remove you from the temporary bliss of a nap on the study lounge couch.

But as with all roommate-type situations, there are downsides as well. I’m sure you have seen the sitcoms where the couple is arguing about where the toothpaste tube should be squeezed. Ridiculous arguments like that really do happen. You have another person that you’re accountable to. Roommates may not care if you come back at 3 AM from studying for a thermo test, but a spouse will. The late night partying, the random Wal-Mart run at 3 AM, and the midnight Denny’s breakfast are all events that are checked through the wants of your spouse, who may very well desire sleep above all else at that point in time.

Admittedly, there is work involved with a marriage. They married you, they’re stuck with you, but that doesn’t mean that they can now take a backseat to everything else. Discussing reactor design problems does not count as quality time. You do need to spend time together, sans schoolwork, to develop your relationship, and time is a commodity that college students don’t typically have. There is the danger of becoming so incredibly busy with everything else in your world that you take your partner for granted—The person you spent far too much time with before marriage can easily become just another item on your list of things to do. But as with all things, you make time for those things that mean the most.

All in all, marriage in college isn’t nearly the hassle that people make it out to be. It’s a step in life that, like all others, takes some adjustment.
For all of you chemical engineers that want the “chemical engineering dream job,” there are certain things that you need to know. Making beer isn’t the easiest thing to do and there are many variables that can be altered to change the outcome of the taste and/or appearance. Unit operations such as reactors (fermenters), pumps, valves, etc are involved making the process quite difficult. So, why is the job so perfect for chemical engineers? Because there isn’t anyone else smart enough to design the process and we love to test the results to prove we are making a superior product. Thus, before choosing this occupation you need to know a little about beer and you obviously need to like the taste.

The first thing that everyone always wonders when they think of beer is the difference between light and dark beer. Well, it gets pretty complicated, but I will give you the basics to start you off in the right direction in your quest in beer-making. American light lager appears to be a very pale straw to a light gold color where the beer is quite clear and the white head usually never persists. These beers use a high percentage of adjuncts from rice or corn giving the beer a very light body. The aroma of these beers is usually very weak comprising of low levels of malt, hops, fruitiness from yeast, “cooked-corn” from DMS, and possibly a faint “green-apple” from acetaldehyde. The flavor is crisp and dry and is comprised of low levels of hops, malt, and a low level of sweetness. Overall, this beer has a lesser alcohol content and tends to be more thirst-quenching that other beers.

American dark lagers are a little different. The color is a deep copper to dark brown because of the dark caramel brewing syrups used. Small amounts of head can persist. The body can be light to medium and is very smooth despite the carbonation. The aroma is very similar to the light American lager. The flavor is a crisp, but non-dry with some roasted malt flavor. Overall, this beer is slightly sweeter and has more body than the lighter lagers.

These two different types of beers are just a small percentage of all types of beers. If you wish to venture into the world of European Lagers, Ales, Koelsch, and Altbier, a great website to view is: http://www.beertraveler.com/beer_styles.htm.

If you have any suggestions on speakers, know a company that would like to come and speak at a meeting, or if you would like to speak at a meeting, please email any information to aiche@umr.edu or the WS05 president Ernesto Rodriguez at emrmr5@umr.edu. Please contact AIChE as soon as possible if you are interested.

The meeting dates are for fall semester 2005 are: August 31, September 14, September 28, October 12, October 26, November 9, and November 30.
The Chem E Car
By William Ruzicka

This year we started up the ChemE Car. It is basically a car that can fit in a shoe box that is powered by a chemical reaction. The car must be able to go a distance of fifty to one hundred feet with up to five hundred milliliters of water on board. The judges will tell us how far and how much water will be required. We will then have one hour to calibrate the car before the race. We have three cars for the Regional competition. The closest to the correct distance is the winner.

One is powered by the reaction of baking soda and vinegar. Batteries power the other two. One of the battery cars has an iodine clock to cut the circuit and stop the reaction. The other one uses acid dissolving a copper wire to break the circuit.

We have received strong support from the department with hundreds of dollars in donations from faculty. There are also many members of the department working on the cars. Each car has a team of two or more people with Ernesto Rodriguez and myself helping where needed. Chad Senters is the committee chair and I am the AIChE officer advisor.

On April 1st and 2nd the Chem E car committee members traveled to Kansas State University to compete at the regional Chem E car competition. UMR placed 6th overall, but was the 4th place school as Oklahoma State took the first three places with their three cars. Unfortunately, only the top three schools are allowed to compete at nationals, but we have a great start for next year.

AIChe Soda Presentations Made Someone Laugh
By Kris Schmoll

This semester I was in charge of making the traditional SODA presentations. From the very beginning I knew what message I wanted my presentations to convey to the AIChe membership; “this is the coolest man alive”. But I was surprised when I found that instead of being inspired by my presentations, people laughed at them. I really don’t know what is so funny about seeing someone hooked up to a Mountain Dew IV or maybe someone’s face on cupid’s body flying across the huge screen of Schrenk G3. I wouldn’t be surprised if I have made an impact on someone’s life this semester. In fact, I heard that Ernesto came to one of our meetings after chugging several Mountain Dews. I wouldn’t spread it around though, that is how rumors start. Speaking of rumors, it is not true that soda lasts forever inside of a can. If you don’t believe me I’ll let you try a Diet Pepsi that we still have from 2002.

A lot has changed this semester, and I don’t mean that metaphorically. The soda quality has increased dramatically from leftover plastic bottles to brand new cans of Wild Cherry Pepsi. When I look back on this semester it reminds me of one of Dr. Neogi’s homework assignments. I knew all of the information, but I couldn’t find the question. I now find myself complacent with the fact that every now and then someone is going to laugh at my presentations. Maybe that is how it was meant to be all along.
AIChE Student Survey
By Katrina Dickmann

AIChE Meeting Attendance By Class

Major

Are You A Transfer Student?

Are You From Missouri?

Hours Spent at the Chem E Building, Per Week

Which Software Do You Hate More?

* Chem E’s favorite soda is Dr. Pepper.

* Thermo I was voted the most useful class, Material Balances was voted the least useful.

* Only 4 out of 16 graduating seniors indicated that they had a full time job lined up after graduation (as of March 2nd).

* Favorite piece of process equipment: distillation column.
At the conclusion of Fall Semester 2004, the officers of AIChE were notified of an upcoming change of advisor eligibility. Our dear Dr. Bob Mollenkamp was no longer officially able to stand as our chapter advisor, due to the decreased number of hours he was physically able to serve at the University while transferring to Adjunct Professor Status. With heavy hearts, we bid farewell to an excellent advisor and role model for the chapter and many of the preceding officers. While offering Dr. Mollenkamp our sincerest wishes for future health, we were faced with the challenge of finding a new advisor. This would be a huge “pair of shoes” to fill for any new incoming faculty member. However, after much deliberation on behalf of the FS04 officers, we decided to pursue a well known veteran of the position. Dr. Daniel Forciniti had previously served as AIChE chapter advisor on several previous and successful semesters. Jake Barrows, the president at the time, arranged a meeting with Dr. Forciniti and was able to convince him of his already outstanding pre-requisite for the title and to accept the position.

As of January 10th, 2005, Dr. Forciniti became the new official advisor of the UMR chapter of AIChE. With his experience in counseling the chapter and his endearing yet strikingly straightforward personality, Dr. Forciniti has greatly aided in the success of the chapter this semester. Speaking for all the officers this semester, we can only hope that he will agree to continue his position with us.

In general, we consider ourselves very lucky to have had the blessing of such great role models and advisors – in the past and in the present. They are an integral part of our organization; and should always be appreciated. Serving as the advisor of our chapter gives no monetary or administratively recognized benefit; so our advisors are serving us out of their general concern and support of their students. They deserve all the other recognition that we as students can give them. Speaking for the other officers of the winter 2005 council, I would like to extend our highest gratitude to Dr. Mollenkamp and to Dr. Forciniti!

**AIChE T-shirts**

AIChE is selling t-shirts as one of this semester’s fundraisers. The shirt is royal blue with white lettering and a red AIChE logo. If you would like to support AIChE by purchasing a t-shirt, please contact the AIChE officers at aiche@umr.edu.