

Welcome back, S&T faculty, to a new semester and the second edition of the e-CERTI newsletter. In this issue, you can read about [Bill Daughton](#), who converted a traditional course into a fully online format, the topic for this semester's [curators' teaching professors summit](#), and some [outstanding faculty from S&T](#). Here's to a great Fall semester!



CERTI NEWSLETTER
Center for Educational Research and Teaching Innovation at Missouri S&T

Bill Daughton online:

Out of His Comfort Zone and Into the Fray

"What am I getting myself into?" Dr. [Bill Daughton](#) wondered -- probably loudly enough for his office staff to hear -- back in Spring 2009 when he volunteered to convert his engineering management course (EMgt 314) to a fully online format by the following semester.

As chair of the engineering management department at Missouri S&T, Daughton had taught this graduate level class a number of times during the previous six years, and his reservations were understandable. He was comfortable teaching a combination of traditional on-campus students and adult learners from off campus who accessed the class through live streaming videos and phone hookup.

This was the commonly understood model of distance education at S&T.



"Rather than a purveyor of information, you become a facilitator of learning. In this environment you are helping people discover the knowledge for themselves." --Bill Daughton
Engineering Management Chair

Why change?

For Daughton, there were a number of reasons – the UM system was making a push for more online classes on its four campuses; this model gave more access and flexibility to students; online teaching had the potential of alleviating classroom shortages; and, most of all, online instruction was on the cutting edge of adult education, right where Daughton wanted his department to be.

"I was worried that we would not continue to be competitive if we didn't start going to this format," Daughton says. "A lot of people have been doing online learning for a long time."

Nationwide, from 2003-2009, the number of students in post secondary education taking some or all of their classes online grew by 10 million. The 12.9 percent growth rate for online enrollments far exceeds the 1.2 percent growth of the overall higher education student population. ([Sloan Consortium](#)).

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(View [Spring 2010](#) newsletter)

DID YOU KNOW?

The CERTI website has a new page called [Starting a New Semester](#), which features tips about early communication with students, syllabus construction, academic honesty agreements, and thoughts on the first day of class.



“My department has been a leader in distance education (on campus), and I wanted to get the expertise to lead the department in online teaching,” Daughton says.

What he didn’t anticipate was that his foray into online education would revolutionize the way he thought about teaching and learning.

New role

When Daughton was faced with the task of re-design, his first thought was to call the [Educational Technology](#) office, hand over his content, and have them magically re-do his class. He discovered it didn’t work that way. Angie Hammons, manager in the Ed Tech office, was glad to serve as a sounding board, troubleshooter and consultant whenever needed, but Daughton himself had to grapple with the content and develop the modules that would provide all of the instruction for the course. He developed six modules in six months, with readings, discussion questions, assignments and embedded assessments that were then uploaded to Blackboard.

“The difference in preparing material online is that you have to be much more formal about making sure the instructions are very clear and thought out ahead of time,” Daughton says. “There is no luxury of adding things on the fly as you can in the traditional classroom. You have to think about how everything is connected ahead of time.

“This forces you to think more deeply about what are the fundamental things students need to know.”

The re-design also caused Daughton to re-think his role as an instructor. “Rather than a purveyor of information, you become a facilitator of learning,” he says. “In this environment you are helping people discover the knowledge for themselves.

“It was a big change for me, a dramatic shift in roles,” he says, a change he found to be extremely satisfying. “Being in the role of facilitator and watching the students learn was more satisfying to me than dumping

information on people.”

Type of Course	Proportion of Content Delivered Online	Typical Description
Traditional	0%	Course with no online technology used – content is delivered in writing or orally
Web Facilitated	1 to 29%	Course that uses web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system such as Blackboard or web pages to post the syllabus and assignments, for example.
Blended/Hybrid	30 to 79%	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and has a reduced number of face-to-face meetings.
Online	80+%	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

Source: [Sloan Consortium](#) *Staying the Course: Online Education in the United States, 2008*

Learning online

It took Daughton roughly two hours a week for half of a year to re-design the course. After the first module was complete, things went much more quickly. The final product was something he was proud to call his own.

But what did his

students think? And how did the digital format affect their learning experience?

Daughton’s online class in Fall 2009 was composed entirely of professionals in the work force who had been out of school for three to seven years. He feels he can make reasonable comparisons between that class and previous adult learners in his distance classes, also professionals in the non-traditional student category.

There were two things that were particularly unique about the online learners. “What I saw was more of an eagerness in their learning,” Daughton says. “Sometimes you feel as though you’re dragging the students along, but these students were taking more ownership of their learning.”

And, the overall quality of their work was better. Much of the course involved essay answer and analysis.

“The quality of writing, the way students explored the material, was noticeably better,” he says. “The students took the assignments more seriously. I could tell that they put more time into the course.”

Each module ended with a five-question self-assessment. Students were asked to reflect on how the content helped them meet the learning objectives, what they felt were the value of the assignments, and related questions. Daughton plans to use this information to tweak subsequent offerings of the course.

The assessments he received showed that the students felt very good about what they learned, he says.

Not second class

Daughton realizes many instructors are skeptical about the effectiveness of online learning. The vestige of the disdained correspondence course remains. But his experience has proven otherwise. “It’s not true that it’s a second-class way to learn,” Daughton says.

A 2009 [meta-study](#) from the U.S. Department of Education agrees, demonstrating that blended learning (a combination of face to face and online learning) is measurably more effective in student outcomes than a traditional classroom format. Fully online instruction, too, shows a modest advantage over conventional classroom teaching.

Daughton will not be teaching the EMgt 314 course online again until Fall 2011, but will be busy helping three other faculty members in his department with course re-design for Fall 2010. As a UM system [eMentor](#), one of three on campus, he serves as a resource for those who are interested in learning about or pursuing online teaching. Contact him for more information (daughton@mst.edu).

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The Balancing Act:

Curators’ Teaching Summit Planned for Fall Semester

For the second year in a row, CERTI will host a summit of Missouri S&T Curators’ Teaching Professors for three luncheon meetings during the Fall semester.

The topic is “*Balancing Teaching and Research.*”

Join us for lunch and a candid discussion from a panel of Curators’ Teaching Professors. Reserve your spot today by contacting [CERTI](#).

Session 1: Noon, Mon., Sept. 20

Havener Center, St. Pat’s C

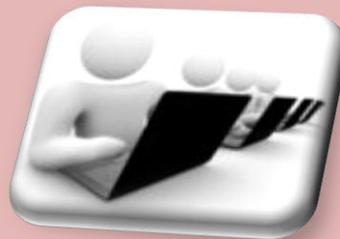
*This will be a panel Q&A session with
questions from the audience*

Mark your calendars for the remaining dates:

Noon, Monday, Oct. 18

Noon, Monday, Nov. 15

For a complete listing of faculty events for Fall, go [here](#).



Tech Com Finds Efficient Way to Organize Student Info

When “communication” is a part of your program’s name, you might want to take extra pains to be sure you organize and disseminate your message clearly. Otherwise, your credibility could go out the window.

That may have been Dr. [Ed Malone’s](#) thinking when he became director of the Technical Communication program at S&T in 2007. He noticed that, similar to other departments on campus, information students needed wasn’t always easy to find and, when it was found, it might conflict with outdated information that seemed to resurge from time to time.

“We had a lot of confusion,” Malone, associate professor of English and Technical Communication, says. There was not one clearinghouse for students to readily access reliable information.

As he looked for a way to standardize and bring together necessary information, he found a format that was right under his nose. An application on Blackboard which allows users to form an “organization” could house all of the information he wanted to compile in one spot. So Malone formed “Missouri S&T Technical

Communication Program Organization,” and he didn’t have to learn a new program to do it. “Building an organization on Blackboard takes about as much technical expertise as navigating a course on Blackboard,” Malone says.

He began uploading information such as course listings, degree requirements, forms from other campus departments, portfolio requirements, research information and MS exam policies. Later, some of his students helped classify the information into graduate and undergraduate sections.

Now, every student enrolled in Tech Com, whether undergraduate, graduate, or one seeking a minor or certificate, becomes a member of this organization. They then can access updated forms and information at their convenience. No more duplicate or conflicting pieces of information floating around the department. No more faculty members calling staff to find out which list of requirements was the newest version.

“It has served us well as far as informing the students and keeping them informed,” Malone says. “We have all of the information they need in one location, and it’s easy for us to update it. It certainly has been an improvement.”

One stop shopping

Students can click on folders in the organization to discover what courses are needed to get a minor in the program, what internships are available, portfolio requirements for a B.S., upcoming deadlines, and more. Regularly updated pdf’s that correlate to these topics are available for download. Similar information is available under the graduate student section.

Another click or two and students can find out about new tech com books available at the library, news about where recent graduates have gotten jobs, and introductions of new students to the program.

Dr. [Kathryn Northcut](#), assistant professor of English and Technical Communication, has taken over as Tech Com program director and has expanded the utility of the Blackboard organization. Her addition of the “Resources for Instructors” section is designed to help technical writing instructors share successful activities and assignments, store electronic handouts and forms, and supplement the textbooks used in courses.

“I think it might be especially useful someday for our GTAs,” she says.

For more options about using Blackboard, contact the [Educational Technology Office](#).

TEAM-BASED LEARNING

Looking for an active learning strategy that is not high tech for your large lecture classes?

Check out this informative, 12-minute video about how team-based learning is used successfully in large lecture sections ... with no new technology needed!

<http://magenta.cit.utexas.edu/largeclasses/#tbl>

SGT FACULTY STAND OUT

What do dog training, an orphanage in Central America, and the properties of glass all have in common?

In one way or another, they have each played a role in the success of some outstanding faculty at Missouri S&T, who were recognized this past summer by the University of Missouri System at its annual awards ceremony.

The Missouri S&T award winners are:

- Dr. Frances “Dee” Haemmerlie, Curators’ Teaching Professor of psychological sciences and recipient of the UM System Presidential Award for Outstanding Teaching;
- Dr. Curt Elmore, associate professor of geological engineering and recipient of the C. Brice Ratchford Memorial Fellowship Award.
- Dr. Richard Brow, Curators’ Professor of materials science and engineering and recipient of the UM System Presidential Award for Research and Creativity.

[Dr. Frances “Dee” Montgomery](#) may be more well-known for her 32 years as a professor at S&T, but her 20-year hobby as a



dog trainer has recently taken a new direction. Her Smooth Collie Henry played Sandy during the Ozark Actors’ Theatre summer production of “Annie,” and his supporting role performance wasn’t anything to sniff at.

According to Montgomery, the two fields of endeavor aren’t very far apart: Teaching a dog a new trick and managing a classroom of

students in a way that maximizes learning share some commonalities.

“My undergraduate and graduate training in clinical psychology incorporated a great deal of behavioral training,” she says. “The principles of many human and animal behaviors are the same. People and animals like praise. They like to work for rewards. So you want to try to build that into your classes.”

It’s an approach that apparently works. Montgomery’s teaching accolades include 10 Outstanding Teaching awards, eight Faculty Excellence awards, the AMOCO Outstanding Teaching Award and the Governor’s Award for Excellence in Teaching.

Another part of Montgomery’s success formula is that while she is teaching the

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Book Review

Outwitting the College Professor: A Practical Guide to Secrets of the System, 3rd ed.

By John Janovy Jr., School of Biological Sciences, University of Nebraska Lincoln

“This book could be entitled ‘How to be a better college student’ and it would contain some of the same advice it does now, but it would not be nearly so much fun to read and the advice would not seem so devious.” – the author

In this humorous, tongue-in-cheek treatise written to college students (especially C students “who have the most potential for change”), John Janovy gives away the secrets on how students can outwit their professors in order to get good grades, helpful letters of recommendation and other assistance from those who wield such power over their lives while they are in higher education.

The content is based on Janovy’s 40+ years of observing students in the college classroom and informally discussing these ideas with students. Here is some of his sound advice:

“(T)he real lesson is that no matter how anonymous

students, she is keeping an open mind in order to learn from them as well. “Every year the students change. I think every good teacher can always find new things to learn from his or her students.”

One thing that remains constant with her classes is their response to her dogs when she brings them to demonstrate behavioral principles. They are always a hit, and the students beg for an encore.

Montgomery plans to continue her award-winning combination of teaching and research. And if she gets to involve her canine friends in the process, it’s just one more reason to believe she has “the best job on the face of the earth.”

It all began in 2002 when an undergraduate student in geological engineering came to [Dr. Curt Elmore](#) with a financial need. She planned to apply for an OURE (Opportunities for Undergraduate Research Experience) project in order to earn the stipend, which looked like it would make her strained financial ends meet just perfectly. Did he have ideas for a research project proposal?

Curt and Cecilia Elmore with Carla, a young woman who lives at Hogar de los Ninos, the orphanage where Elmore’s students installed a water well.



As a matter of fact, he did. Through his church, Elmore and his wife, Cecilia (director of the Women’s Leadership Institute at S&T), sponsored a young girl in an orphanage in Guatemala which did not have a permanent water supply. A possible OURE project could focus on research and solutions to provide reliable and safe water.

The student, who had not been out of Missouri more than 10 times in her life, agreed to the proposal and

traveled to the Central American country. She spent the stipend on travel instead of tuition and, in the process, changed her life.

That was the beginning of what is now a capstone course called International Engineering & Design (IEAD), which debuted in 2003 on the S&T campus and which pre-dates the Engineers Without Borders program by about a year.

Students who take the class must commit to four weeks of international travel during the 15-week class. That means they will give up a week at the end of Christmas break, their entire Spring Break, and two weeks of classes, which they must make up on their own.

The course is open to all majors and is part of the Global Studies minor, an interdisciplinary program now available at S&T and the first such special program on campus. (For more information, go to http://ugs.mst.edu/global_studies_minor.html)

Over the years, the students’ projects have included analyzing water samples, making and determining the reliability of ceramic pot filters, and developing groundwater wells for a dental clinic, the orphanage from the original project, and the surrounding neighborhood.

or hidden you may think you are in a large auditorium, a teacher can probably see you and recognize immediately whether you are contributing to the overall academic atmosphere or being a distraction to your classmates. Fifty minutes is not very long. Just sit there, pay attention, and at least look like you’re taking notes, glancing up at the screen or blackboard periodically, even if you’re busy writing a poem or a letter to your significant other. Sound simple? It is simple. In fact, it is so incredibly simple that after a few days you’ll find yourself wondering why so many of your classmates are doing exactly the opposite behavior.” (p. 8, 2nd ed.)

Some of the chapters include “Know Your Foe,” “Social Occasions and Etiquette,” “Letters of Recommendation” and “Advanced Outwitting” for those particularly hard cases.

The 3rd edition is available from [Amazon](#). But if you want to take a look at a free download of the 2nd edition, and have a good laugh at the same time, go to <http://bsweb.unl.edu/labs/janovy/OCPBook.pdf>

So far, students' trips have been limited to Guatemala, but Elmore is in the process of developing funding and relationships to be able to send student teams into Brazil.

One of the most gratifying experiences of the program, Elmore says, is watching the students' attitudes change as they progress through the course, especially during the international travel.

"They come back with the realization that they learned a lot more than they thought they would," Elmore says, but not only about the project they researched. "They find out that people with fewer resources have helped them a lot more than they have helped them."

When [Dr. Richard Brow](#) gazes into the looking glass of the future, he doesn't see any end in sight. No end, that is, to discovering more about the uses and properties of glass to solve real-life problems.

"The great thing about science is there's always something new, always something interesting to study," he says. "Glass is a difficult material to understand. There are always new applications, new understanding. I look forward to discovering that."

Not only does it make his job worth getting up for every morning, but, "this type of science is the kind that ensures job security," he quips.

Brow has been one of the leading glass scientists in the world for more than 20 years, especially in the area of phosphate glass, which is used in nuclear waste disposal, laser glasses and sealants.

Some of his accolades include being the first American recipient of the Gottardi Prize from the International Commission on Glass and receiving an award from R&D Magazine for the development of a sealing glass that was named one of the 100 most technologically significant new products of 1996.

Brow is quick to give credit to others for the part they play in his success.

"I'm lucky to have a family that puts up with the weird hours associated with this job," he says. "And then there are my colleagues who inspire me with their enthusiasm for the work we do. This is a department (Materials Science & Engineering) where the faculty has similar outlooks on the importance of research and the value of doing a good job in the classroom.

"Also, I'm really lucky to have great students who do all of the hard work," he adds.

In 2007, Brow helped establish the Hot Glass Shop in Fulton Hall, a studio where students and faculty work molten glass into objects of art. "It's a place where one can develop an appreciation of the aesthetic qualities of a material that complements the scientific principles we teach in the classroom and study in the labs," he says.



Still, glass isn't the only thing on his mind. Sometimes he likes to study wood -- hardwood, that is. He helps coach his youngest daughter, Adelaide, 11, in basketball, and cheers on his oldest daughter, Katie, 15, a Rolla Bulldog volleyball player.

And then there are the woods in his golf bag that he would love to see more of if given half a chance...



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