

The ASEE Chemical Engineering Division Newsletter

Volume 7 Number 1

Spring 2005

A Message from the Chair



Dr. Daina Briedis
Michigan State University

Fading Points of Light?

I just received another e-mail note from our program's academic advisor calling for help in recruiting student volunteers! As much as our students like and respect our advisor, she was having difficulty in rounding up enough students to participate in our Advisory Board student luncheon.

Whether it's participating in an exit interview, meeting with an ABET program evaluator, or helping at our college open house, we have observed a significant downbeat in the attitudes of our students toward volunteer activities. Faculty have sometimes resorted to coercion and other "carrots" to stimulate student participation--extra credit points, course requirements, and the promise of

free food. But even the offer of a free lunch no longer seems to carry much weight. Students even show reluctance to commit to membership in professional and honorary societies. No doubt the millennials are a busy generation.

Although some anecdotal evidence suggests an increase in volunteerism, a recent national study on attitudes toward volunteerism in college students indicates that this downturn is widespread and relatively recent. A 1996 study of American freshmen by the Higher Education Research Institute (www.gseis.ucla.edu/heri) showed that 71.8 percent of freshmen surveyed did *some* volunteer work. In contrast, a post-9/11 study commissioned by the Leon & Sylvia Panetta Institute for Public Policy (www.panettainstitute.org/lib) clearly demonstrates that community and public service rank at the bottom of student priorities; only 25 percent of college freshmen reported participation in some type of volunteer activity in their local communities.

The need for worldwide service and volunteer engagement has never been greater. Over the past few years, volunteerism has been a major force in relief efforts in natural disasters. The response to the 2004 Florida hurricanes was the largest recorded volunteer effort in U.S. history; over 140,000 volunteers donated about six million hours of their time (www.pointsoflight.org). Volunteer organizations worldwide are assisting

the December 26, 2004 tsunami victims. So what's happening at the college level and why should we care?

Volunteer work in college develops long-term benefits for graduates. Active volunteerism in college students is positively correlated with effective leadership in their communities and within their professions (Jack Calareso, Columbus Dispatch Editorial, September 27, 2004). These graduates become active in charities and are politically engaged. In the engineering profession, our professional societies, ABET, and engineering outreach programs rely heavily (or even exclusively) on volunteer participation. These important aspects of our profession may be at risk if student attitudes toward service aren't improved.

Service learning opportunities are a formal means by which to encourage students in volunteerism, community service, and civic action. However, not all engineering programs are able to incorporate a formal service learning component in their curricula. A few other simple options might be used.

One approach that faculty can use to encourage students in acts of service is to talk openly about their own volunteer activities. Our division membership includes many individuals who are ABET program evaluators, society officers, and outreach volunteers. Use yourselves as examples and emphasize the value of volunteer experiences not only to the engineering profession, but in your own betterment as well! Secondly, if you have an appropriate seminar course, consider covering volunteerism and its relationship to professionalism as a formal topic. Having students

investigate the extent to which professional societies rely on volunteers might be an eye-opening experience. You no doubt have creative ideas of your own. I firmly believe that, as professionals, we have an obligation to contribute to our communities, and faculty should be very deliberate about fostering this attitude in our students as well.

And speaking of volunteers, it's time for our division elections. We have an excellent slate of candidates for the 2005-06 officers of the Chemical Engineering Division of ASEE. These individuals have expressed interest in serving our profession. Please take the time to review their biographies. Then cast your vote!

I hope to see you all at the **2005 ASEE Annual Conference and Exposition in Portland from June 12 to 15, 2005.**

The program is outstanding (please see <http://www.asee.org/about/events/conferences>). The ChE Dow Lecture, presented by Dr. Bruce Finlayson, followed by the Division Awards dinner cruise promise to be centerpieces of an excellent series of presentations and posters. We owe a debt of gratitude to our conference and awards volunteers--2005 Program Chair, **Jim Henry**, our Local Arrangements Chair, **Skip Rochefort**, and the Awards Committee Chair, **Stew Slater**—and to all of you who participated in the various awards committees! Thanks for your outstanding work!

Finally, as the year draws to a close, I would like to thank all of the other division officers—some of whom have worked in these positions for several years. Many thanks for your willing and dedicated service!

Richard Zollars, Chair-elect
James Newell, Secretary/Treasurer
David Silverstein, Membership
Richard Davis, Division Director
Nada Marie Assaf-Anid, Division
Director
Kirk Schulz, Summer School Co-Chair
Steve Leblanc, Summer School Co-
Chair

See you all in Portland!
Daina Briedis
2004-05 ChE Division Chair

**Be Sure to check out the
Division Web Site:**

<http://www.asee-ched.org>

**The ASEE Chemical
Engineering Division
Election 2004**

How To Vote:

**Please note that since the current
treasurer is running for office, the
votes are to be sent to the current
Division Chair.**

***Send e-mail to
briedis@egr.msu.edu***

Choose for Division Chair:
Jim Newell or Polly Piergiovanni

Choose for Treasurer
David Silverstein or Ted Wiesner

Choose for Director:
Kevin Dahm or Fred Weber

**Votes must be received
By May 27th**

Division Chair



**Jim Newell
Rowan University**

Jim Newell is a Professor of Chemical Engineering at Rowan University and has spent the last four years as Secretary – Treasurer of the ChE Division.

His technical research focuses on high performance polymers and composites, including structure-property-processing relationships, analysis of ballistic materials, and use of high performance polymers as precursors to other materials

His pedagogical studies have included outcomes assessment strategies, incorporating communication skills into the curriculum, rubric development for assessing multidisciplinary projects, and developing metacognitive engineering teams, for which he (and his co-authors) have received the 2005 Corcoran Award.

Jim was the 2001 recipient of the Fahien Award and a 1997 recipient of a Dow Outstanding New Faculty Award. He is currently writing a new Materials Science textbook for Wiley with increased emphasis on polymers, green engineering, statistics, and the impact of economics on selection.

Jim is a die-hard professional baseball fan (actually, I like the Pirates, but close enough) and spends his limited free time with his gregarious five-year old daughter, wife, cat, and three Guinea pigs.



Polly Piergiovanni
Lafayette University

Professor Polly R. Piergiovanni began her teaching career at Lafayette College in 1990. Recognizing her lack of experience and training in teaching college students, she attended the ASEE Chemical Engineering summer school in 1992. "For the first time," she writes, "I was taught how to teach. . . . Since then, I use different methods in each course, to try to reach each student. Many of my teaching ideas or laboratory experiments are tried first with my three children, A.J., 12, Geneva, 9 and Tim, 5 ½."

Her research interests include biochemical engineering, although the topics she has investigated have varied, depending on student interest and her role as one who teaches the students what research is and how to do it. Professor Piergiovanni has been active in ASEE since joining Lafayette College.

She has been a session moderator at nearly every annual conference and has helped plan or has presented at two Chemical Engineering summer schools. She enjoys mentoring young faculty (through programs such as MentorNet), and strongly encourages them to become involved with ASEE

Treasurer



David Silverstein
University of Kentucky

David L. Silverstein is currently an Assistant Professor of Chemical and Materials Engineering at the University of Kentucky College of Engineering Extended Campus Programs in Paducah.

He received his B.S.Ch.E. from the University of Alabama in Tuscaloosa, Alabama; his M.S. and Ph.D in Chemical Engineering from Vanderbilt University in Nashville, Tennessee; and has been a registered P.E. since 2002.

In addition to teaching and research in interfacial phenomena, Dr. Silverstein is developing a computer framework for applying learning styles to a multimedia computer-based supplement to engineering courses.

Silverstein is the 2004 recipient of the William H. Corcoran Award for the most outstanding paper published in Chemical Engineering Education during 2003, and has served as Membership Chair for the Chemical Engineering Division of ASEE since 2002.

Division Director



Ted Wiesner
Texas Tech

Theodore F. Wiesner (Ted) is an associate professor of chemical engineering at Texas Tech University. He is a licensed professional engineer with 10 years academic experience and 10 years industrial experience.

Dr. Wiesner conducts research in the application of computer-based instruction. He recently developed the Virtual Unit Operations Laboratory (VUOL), a suite of simulated experiments designed to augment, or in some cases, replace the typical physical unit ops laboratory.

Ted has also contributed extensively to the emerging discipline of bioengineering. He has investigated intracellular biochemical reactions with mathematical modeling and advanced image processing, optimal control of bioreactors, and the mechanics of blood flow.

Prior to his academic career, Dr. Wiesner worked as a project engineer in charge of the design, construction, and start-up of activated sludge wastewater treatment plants, and as a plant engineer in polypropylene manufacturing.



Kevin Dahm
Rowan University

Kevin Dahm is an Associate Professor of Chemical Engineering at Rowan University. Kevin received his B.S. from Worcester Polytechnic Institute in 1992 and his Ph.D. from Massachusetts Institute of Technology in 1998. He joined the faculty at Rowan in the fall of 1999, after serving as a postdoctoral researcher at UC Berkeley and as an Adjunct Professor at North Carolina A&T State University.

Kevin joined ASEE in 1999 and has been an active member of the chemical engineering division ever since. He has a broad range of interests in engineering pedagogy. He has published papers on development of rubrics for assessment of student learning, use of process simulation in the chemical engineering curriculum, integrating engineering economics into the curriculum, micromixing experiments for the introductory chemical reaction engineering course, and using writing exercises to improve the performance of teams.

He received the 2003 Joseph J. Martin Award for a paper on the roles of McCabe-Thiele modeling and process simulation in teaching separations. In addition, he and James Newell received the 2002 ASEE PIC-III award for a paper submitted to the Engineering Economy division.

Kevin's PhD thesis was on mechanistic modeling of hydrocarbon pyrolysis, and he has recently published on its applications on the development of the SCRAMJET engine. In addition, Kevin has an ongoing collaboration with his father, Donald Dahm, on developing theoretical models of diffuse reflectance. They are currently co-authoring an introductory book in this area, which is expected to be released late this year.



Fred Weber
University of Tennessee

Fred Weber is an Associate Professor and Associate Head of the Chemical Engineering Department at The University of Tennessee at Knoxville. He received a BS in Chemical Engineering from the University of Michigan in 1974 and a Ph.D. in Chemical Engineering from the University of Minnesota in 1982.

The main focus of my research is in the development of tools and techniques to improve the delivery of engineering education. Current interests are in developing database driven web sites to aid engineering education using Apache, Tomcat, MySQL, and Coldfusion. Further details can be found on my website: <http://www.che.utk.edu/fweber/>

ASEE National Meeting ChE DIVISION SCHEDULE

Sunday, June 12th

12:30 Session 0413 – Green Engineering Workshop (12:30-5:00) \$25.00

Monday, June 13th

7:00 AM Session 1113 - Executive Committee Breakfast –

10:30 AM Session 1313 – ChE Department and Faculty Issues

12:30 PM Session 1413 – Innovative Topics in the ChE Curriculum – Room 250 B

2:30 PM Session 1513 – Developments in ChE Education Poster Session

4:30 PM Session 1613 – ChE Lectureship Award Presentation – Room 250 E

6:30 PM Session 1713 - Chemical Engineering Division Dinner and River Cruise

Tuesday, June 14th

8:30 AM Session 2113 – ChE Department Chair Meeting

12:30 PM Session 2413 - Chemical Engineering Division Business Lunch–Salon G

2:30 PM Session 2513 Innovation in the ChE Labs

Wednesday, June 15th

7:00 AM Session 3113 Design and Computation in ChE Courses

12:30 PM Session 3413 – Innovation for ChE Student Learning

2:30 PM Session 3513 – Innovations in ChE Teaching

4:30 PM Session 3613 – Curriculum and Assessment in ChE