MESSAGE FROM THE CHAIR

To our CHBE students, alumni and friends,

With the feel of Fall (almost) in H-town, I highlight a few things of interest!

Prof. Fred MacKintosh (a world-renowned expert in soft matter physics, complex fluids, and biopolymers) has joined our Department officially as the Abercrombie Professor of Chemical & Biomolecular Engineering. His office is on the tenth floor of the BRC. He holds joint faculty appointments in the Department of Chemistry and the Department of Physics & Astronomy, and he is Senior Scientist at the Center for Theoretical Biological Physics (CTBP).

Speaking of faculty locations, Prof. Lisa Biswal recently moved her whole research group into the NEST (New Emerging Science and Technology Center) in George R. Brown Hall. This is a first-on-campus, open-design lab/office space in which her group and other researchers from Natural Sciences and Engineering are co-located. It is very cool! Prof. Ramon Gonzalez also moved his lab to the BRC; he’s located on the eighth floor. As our faculty continues to spread out around campus, we are working to improve and create new space within Abercrombie Labs for our undergraduate laboratory.

Our first set of Gibson Fellows for meritorious performance at the undergraduate and graduate levels were chosen last Spring for their academic and leadership achievements: Mr. Yongchao Zeng, PhD candidate (with Profs. Biswal and Hirasaki), Ms. Tolumimi “Nimi” Oyeleye (now junior), Ms. Morgan Glose (now junior), and Ms. Radina Khalid (graduated)! They had a chance to converse with Dr. Mike Gibson over a nice lunch at the Faculty Club.

The Department is mightily busy with faculty recruiting this Fall. We are actively looking for multiple professors at all ranks in the areas of Molecular Nanotechnology (specifically, sustainable energy, catalysis, and polymers/soft-matter) and in “biomolecular engineering” (to us, it means synthetic biology and systems biology for materials, energy, and medicinal applications). They will join our newest Associate Professor in the Department, Prof. Rafael Verduzco, who received tenure last Spring!

With regards,

Mike Wong

Support the ChBE Department

You can make a tax-deductible donation to our department at giving.rice.edu

Here are some suggestions for department initiatives that your gift can support:

Undergraduate Support
Lab Equipment and Repairs (Please list fund number G81612/715000 in the special instructions box)

Paid internships within ChBE (Please list fund number G81613/715000 in the special instructions box)

Graduate Recruiting (Please list fund number G81430/715000 in the special instructions box)

Faculty Support (Please indicate fund number G82873/715000 in the special instructions box)

General Support (Please indicate fund number G80609/715000 in the special instructions box)

Feel free to contact our Department Chair, Michael Wong (mswong@rice.edu), for additional opportunities.

Our faculty, staff, and students thank you for the continued support!
Department of Chemical & Biomolecular Engineering

Departmental Announcements

NEW FACULTY

FREDERICK C. MACKINTOSH  
Abercrombie Professor of Chemical & Biomolecular Engineering  
Professor of Chemistry and Physics & Astronomy

Dr. MacKintosh’s research focuses on the fundamental material properties of biological and soft matter networks.

Fred received his Ph.D. in Theoretical Physics from Princeton University in 1989. Following a postdoctoral fellowship at Exxon Corporate Research, he began his academic career in the University of Michigan’s Physics Department, first as an Assistant and then Associate Professor. In 2001, he joined the Physics faculty of Vrije Universiteit in Amsterdam, as Professor of Theoretical Physics. His key achievements include: the development of commonly used models of elasticity and dynamics of biopolymer gels, combined experimental and theoretical advances in micro rheology and non-equilibrium, motor-activated gels and active diffusion in cells, as well as the identification of affine to non-affine transitions and critical behavior in fiber networks.

CONGRATULATIONS

KENNETH R. COX  
Recipient of 2014 Professional Excellence Award

Dr. Kenneth R. Cox was awarded Chemical & Biomolecular Engineering Department’s Professional Excellence Award in 2014 recognizing his exceptional performance in undergraduate teaching.

Dr. Cox is a Professor in the Practice and the director of Undergraduate Studies in the Chemical & Biomolecular Engineering Department. He has taught courses from introduction to design fundamentals in Chemical & Biomolecular Engineering, from industry applications to process safety. His teaching style has helped students to relate engineering concepts to practices and to develop system thinking from the course to their ongoing careers.

Prior to joining the faculty at Rice University, Dr. Cox taught for 4 years at The Ohio State University and worked for 17 years as a Research Engineer with Shell Development Company in Houston. Dr. Cox served for many years as a member of the Editorial Board for Fluid Phase Equilibria, an international journal. He has also served as chairman of the Chemical Engineering Science and Fundamentals programming committee of AIChE and as a member of the Executive Committee of the South Texas Section of AIChE and as a Liaison Director of CoMSEF.

The Chemical & Biomolecular Engineering Alumni Committee has established the bi-annual Professional Excellence Award to honor one faculty member who has made an outstanding contribution to the education of undergraduate and/or graduate students.
The Chevron Lecture on Energy, hosted by the Chemical & Biomolecular Engineering department, was held on April 14, 2016 in the Glasscock School’s Anderson Clark Center Auditorium on the Rice University campus. This annual lecture series is sponsored by Chevron to facilitate discussion and increase awareness of energy-related topics, and reflects the relationship between Chevron and Rice University in Research related to energy.

Dr. Medlock spoke on the long-term energy market and the uncertainty and disparate forecasts for transition to new sources of energy. He described some of the key factors that must be considered to develop a realistic view of energy transitions. One of these is “scale” – the energy value chain is immense and capital-intensive, and any analysis of energy market transitions must take this into account. The costs of maintaining versus replacing long-lived capital assets must be part of the evaluation, and will have a profound effect on realistic forecasts of the energy market.

A networking event was held prior to the lecture, supported by the Department’s active alumni advisory committee. The event included a research poster competition for Chemical & Biomolecular Engineering students and postdocs. This afforded opportunity for department alumni to catch up with one another, as well as meet with faculty and students to discuss current research topics and happenings in the department.

Past speakers include John Hoffmeister (2015), former President of Shell Oil Company and Founding CEO of Citizens for Affordable Energy, Carlos Aguilera (2014), Vice President and General Manager, Business Development, Chevron Africa and Latin America Exploration and Production Company, and Lynn Orr (2013), who was Director of the Precourt Institute for Energy at Stanford, but now is the DOE Undersecretary for Science and Energy.

This year’s lecture was given by Dr. Kenneth B. Medlock III, the James A. Baker III, and Susan G. Baker Fellow in Energy and Resource Economics at the Baker Institute and the senior director of the Center for Energy Studies.
In August 2015, the AIChE student chapter partnered with the ChBE Alumni Board to create a series of workshops to help students with the fall recruiting season. These workshops included a panel of recruiters to answer questions, fishbowl interviews, resume reviewing, mock interviews, and elevator pitch help. Charlie Meyer, John Chapman, Prachi Bhawalkar, and Will Kasper all sat on the panel and answered any and every question which students had about the recruiting process, career fairs, and interviews. John Perez, Lindsey Witte, and David Van Kleek all held fishbowl interviews with students Alina Datta Gupta, Ben Jefferson, and Michael Mardock, respectively. A fishbowl interview is best described as an interview which is held in front of an audience, and is then debriefed by the interviewer and the interviewee, which is followed by a question and answer session. Ron Smoller, Bharat Chahar, Gaby Guevara, Andres Novoa, Guillaume Besnard, Jennifer Pinnick, Lindsey Witte, Ying Zhang, and Ryan DuBois all reviewed student resumes on their own time, and then met with the students to provide their recommendations. Crystal Ramon Miranda, Martiel Luther, Jasmine Pierreauguste, Don Mims, Guillaume Besnard, Chuck Hewell, Gautam Kini, John Lievois, Tim Perkins, and Prachi Bhawalkar all reviewed student resumes, mock-interviewed students, and advised the students on how to improve their interviewing skills. Patrick Malone and Neil Little worked with students to create and improve elevator pitches. The elevator pitch is the thirty second introduction a student uses when they meet a recruiter, often at a career fair, in order to interest a recruiter in speaking more with them. All of these events occurred on weeknights and a weekend morning. The students were very appreciative and grateful that the alumni took time out of their personal lives to help with the often intimidating recruiting process.

In the Spring of 2016, the AIChE student chapter held a BBQ for alumni, students, and faculty, to come together and network. This event was held on a Saturday night at the grills by Valahalla, and was very successful. The AIChE student chapter thanks everyone who came out on a Saturday night! In addition to the BBQ, they held a speed mentoring session where alumni volunteered to answer any questions students had. For this event, nearly 30 alumni shared their experiences and expertise with students about different industries and the working world. The students were very grateful to all alumni which participated in this event.

The combined effort of the alumni and AIChE student chapter made a huge difference to a number of students. Throughout the past year, AIChE appreciated the willingness and interest of the alumni who participated as it was the inaugural year for all of these events. AIChE held similar events for the recruiting season.
2016 Fall Series

During the first two weeks of the Fall 2016 semester, Rice’s AIChE, GSA and SPE joined forces to offer a series of events aimed at helping ChBE/SPE students enhance their interviewing skills – so important in this challenging recruiting environment and just before the Fall career fair. The first evening, over 20 students attended a panel discussion with four Rice alumni industry reps on what to expect during the recruiting process. They observed two brief mock interviews by alumni, each followed by Q&A. The next event was a “resumania” evening with 40 one-to-one student-volunteer pairings for detailed resume reviews and feedback. The final and largest event consisted of one-to-one student-volunteer pairings for personal mock interviews and resume feedback for over 50 students across two evenings. As you can observe from the participation, the response to the event series was outstanding! Students truly appreciated the opportunities to learn and practice their skills, and volunteers valued the opportunity to make a direct and timely impact with students. Special kudos go to seniors Lucia Pasara and Carolina Sampson representing AIChE, Yongchao Zeng representing GSA and Patrick Dong representing SPA all of whom organized and lead the events. Our grateful thanks to the 27 alumni and friends of Rice who volunteered their time to support the ChBE/SPE students and to Karen Shelton for her invaluable assistance with logistics!

Dear Alumni

COME AND JOIN US IN THE FUTURE!

If you’d like to participate in a similar series of events next year, please be sure we have your correct email address and zip code. Send updates to RiceChBEAlumSecretary@gmail.com and keep an eye out for the email invitations to join in.
In 1968, Hellums became a founding member of the Biomedical Engineering Laboratory at Rice, and he later served as its director for 10 years. At the time of his retirement in 1998, Hellums told Rice News: “I was not biologically oriented at that time. I was into computational fluid dynamics, but Dr. DeBakey sort of brainwashed us, explained to us what an exciting project it was, and we joined on.”

“David Hellums tested theories of blood flow in capillaries and investigated the physical factors of blood trauma with a group of physician-scientists at Baylor,” said Michael Deem, the John W. Cox Calder Professor of Bioengineering and of Chemical and Biomolecular Engineering and chair of bioengineering at Rice. “Their original mission was to find solutions to bleeding and clotting problems associated with cardiovascular prostheses. This led to the first successful left-ventricular bypass pump by DeBakey and William W. Akers.” Akers is Professor Emeritus of Chemical and Biomolecular Engineering and of Bioengineering at Rice.

Hellums became a full professor in 1968, and from 1970 to 1976 he served as chair of the Department of Chemical Engineering. From 1980 to 1988 he was dean of engineering. Hellums was also an adjunct professor at Baylor and the University of Texas Health Science Center at Houston.

“David was a true pioneer of biomedical engineering at Rice,” said Antonios Mikos, the Louis Calder Professor of Bioengineering and of Chemical and Biomolecular Engineering and director of the Center for Excellence in Tissue Engineering at Rice. “His research provided the foundation of the interplay of blood flow, vascular physiology and thrombosis, which had enormous implications in health care. His work advanced our understanding of human disease and facilitated the development of new therapeutics.”

In 1987, Hellums became the first engineer to receive the Research Merit Award from the National Institutes of Health, in recognition of his “application of biofluid mechanics and cellular engineering methods to biological research.” The original 10-year grant was extended twice for a total of 20 years of funding. He was elected to the National Academy of Engineering in 1998. “He was a pioneer in developing cardiac assist devices and in investigating the effects of shear forces on human red blood cells and platelets,” said Dr. Joel Moake of the J.W. Cox Laboratory for Biomedical Engineering at Rice and professor of medicine at Baylor, where he was a longtime research collaborator with Hellums. “He was a critical catalyst in the formation of the Department of Bioengineering, which has been the most highly ranked department at Rice since the inception of the new discipline two decades ago.” “In addition to being a leader and a creator,” Burrus said, “he was a productive scholar, excellent teacher and a nice human being.”

Hellums is survived by his wife, Marilyn, of Houston; his son, Mark, of New York City; and his son, Jay, of London. A memorial service was held July 2 at the First Christian Church.

The Department of Bioengineering will honor Hellums by establishing the J. David Hellums Chair in Bioengineering.
East African countries currently face numerous environmental issues including deforestation and water scarcity. In Somalia, the majority of home cooking and heating is fueled through charcoal and may be reducing forest cover by 3% annually.

For their senior design projects the 2016 CHBE senior design groups were assigned the task of taking winning designs from CHBE senior classes from the late 90’s and improve and expand the projects to current technological standards and utilize the elements of Green Chemistry. The plant would then need to be placed in a developing country where the product could benefit the region, and would not negatively impact the local ecosystem.

Team EA Tech, which consisted of Gabriella Buba, Amanda Cortinas, Kyle Giubbini, James Griffith, Robert Johnson, Radina Khalid and Jared Shull, was selected as the winner of the William W. Akers Design Competition by a panel of professional chemical engineers.

EA Tech, has developed a sustainable design for an ethanolamines plant to be located in Ulanqab in the Inner Mongolia region in China. China has had many widespread health problems due to the large amounts of pollution in its industrialized areas. Last year 1.3 million deaths were attributed to pollution in cities. This past year, China initiated plans to reduce carbon emissions from its energy sector by 60% by 2020, while simultaneously starting construction on over 150 new coal fired power plants. While these goals may seem contradictory, many coal fired power plants are able to significantly reduce their atmospheric carbon emissions by carbon capture and storage (CCS) methods. One of the most popular CCS techniques is to use ethanolamines to capture flue gas CO2 and store the CO2 as a pressurized gas.

This has been achieved by creating a process that has fully processed waste streams via MEA scrubbing, in order to capture 95% of produced CO2, thermal decomposition of amine waste, and a recycled refrigeration loop that prevents heat waste from being released into the local aquatic environment.

Due to the location of the plant, all electricity needs required by the plant, which are reduced through the use of heat integration, will be met by wind energy, as Inner Mongolia has a wind generation capacity of 900,000 kW. This capacity goes largely unused as there does not yet exist the infrastructure to fulfill the transmission requirements to other regions where the energy could be used.

Plant optimization resulted in the selection of a 20 meter long, 0.3 m diameter adiabatic plug flow pipe reactor. Reactor operating pressure was set to 12,000 kPa and the maximum temperature in the reactor was 100°C. The reactor was designed to use a 6,620 kg/hr recycle loop which would recover 99% of excess NH3 and H2O catalyst, and purge no reactant or product as chemical waste streams.

Separations of the ethanolamines MEA, DEA, and TEA occurred in a flash and three vacuum distillation towers. Chemical grade MEA would be produced at a rate of 6300 tonne/year and 99% mass purity. Chemical grade DEA would be produced at a rate of 3400 tonne/year and 99% mass purity. Commercial grade TEA would be produced at 1550 tonne/year and 85% mass purity.
Dr. Harry A. Deans studied Chemical Engineering at Rice from 1953 to 1956, and earned a Ph.D. in Chemical Engineering from Princeton in 1960. Following graduation, Deans taught at Rice for many years and became a prominent member of the Rice community.

Dr. Deans was a beloved mentor to many of his students and is remembered fondly throughout the Chemical Engineering Department.

“My dad was an excellent teacher and an even better engineer, and this shows through the life-long relationships he established with many of his students,” says Deans’ son, Dan. “We met so many of his former students after his passing who told wonderful stories of how he had affected them and their careers.”

To honor Dr. Deans’ commitment to the Rice community, his family – which includes Harry’s wife Delora and their daughter, as well as his first wife Karolyn and their four children – endowed a memorial fund in his name. The endowment will be used to support undergraduate opportunities in Chemical & Biomolecular Engineering, student travel, competition participation, design projects, awards, lab and classroom enhancements, as well as student organization support.

“We felt that the best way to honor his memory was to establish a fund to support undergraduate projects in Chemical Engineering and allow students to further their education—something about which he was deeply passionate,” says Dan.

Over the last several months, Deans’ family has been humbled by the donations the fund has received.

“We are truly blessed by his passion for his work,” says Dan, “and we hope that, by continuing to support this fund and asking others to support it, his memory will live on and more students will be blessed in their efforts to start their own careers as engineers and scientists.”

The School of Engineering celebrates Dr. Deans’ passion for both his profession and his students, and hopes the fund continues to grow in his honor.

Gifts to the fund can be made online at giving.rice.edu or by sending a check made payable to “Rice University” to:

**Rice University**  
*Attn: Harry A. Deans Memorial Fund in Chemical & Biomolecular Engineering*  
Office of Development MS-81  
P.O. Box 1892  
Houston, TX 77251-1892

Please specify “Harry A. Deans Memorial Fund in Chemical & Biomolecular Engineering” when making your gift.  
For more information, please contact the Engineering Development Office at engdev@rice.edu or (713) 348-2229.
The department recently mourned the loss of Scott L. Wellington, a Research Professor in Chemical and Biomolecular Engineering (ChBE). Prior to his appointment at Rice, Professor Wellington enjoyed a long and distinguished career in the oil and gas industry. Professor Wellington passed away on September 17th, 2016.

**Dr. Wellington** earned a B.A. in Chemical Engineering at Hiram College in 1966, and an M.S. degree from John Carroll University in 1968. After receiving his Ph.D. in Chemical Engineering from Case Western Reserve University in 1972, he worked as a Research Associate at Carnegie Mellon University. He then took a career position with Royal Dutch Shell (RDS) where he remained until retirement in 2010. In his final position at RDS, he was a Managing Scientist and Global Technology Consultant for Exploration and Production. In that position, he led a diverse R&D department of scientists and engineers with goals to efficiently produce heavy viscous crude oils via in-situ viscosity reduction and develop unconventional surface upgrading methods using unique unsupported nano-catalysts and intensified reactor designs while simultaneously capturing, recycling or sequestering all environmentally hazardous by-products and carbon dioxide. He held more than 140 patents at the time of his death.

In 2013, Dr. Wellington joined Rice University in 2013, spearheading new projects focusing on research in heavy oils. He mentored Postdocs and developed research relationships with industry partners. His research programs included collaborations with groups of faculty and involved finding new solutions to problems such as CO₂-based enhanced oil recovery, heavy oil upgrading, and removing sulfur from fuel.

He worked closely with other faculty members within the department. Professor Walter Chapman remembers Dr. Wellington as an esteemed colleague in the energy field: “I met Scott when we both worked for Shell. He was always enthusiastic about some new research result, and had an ability to explain complex systems in a simple way. His technical achievements were highly recognized at Shell. Since coming to Rice, Scott put together teams of faculty to attack challenging research topics with potentially big benefits for the energy industry and Rice.”

“Scott’s contributions to the industry were enormous,” said George Hirasaki, a fellow Research Professor and a Rice Alumnus. “Scott wrote a paper on ethoxylated sulfonate surfactants. About ten years ago, we had a paper with the Shell folks on the same class of surfactants. Recently, I asked some Exxon people how they chemically stabilize polymers. They said they use the Wellington package.”

Professor Kyriacos Zygourakis was the department chair at the time Dr. Wellington was hired to do research at Rice. “Scott impressed me with his far-reaching analysis and his remarkable ability to detect patterns in multi-variable complex problems and make insightful connections. His knowledge was broad and deep, covering a wide spectrum of challenging engineering problems. Working with Scott was pure joy, a constant intellectual stimulation. Over the past five years, he became a good friend, trusted adviser and invaluable colleague.”

Dr. Wellington served as a consultant with the U.S. Department of Energy on President Bush’s Commission on the formulation of US CO₂ Energy and Environment Policy. He consulted with Citizens for Affordable Energy to formulate a practical U.S. energy policy for transitioning from fossil fuels to affordable and sustainable energy.

He was a member of the Society of Petroleum Engineering and the American Chemical Society.
WHERE ARE THEY NOW  
Class of 2006

**Christ Barth**

Christ has been working at Chevron since graduation. After starting his career in Houston, he rotated to Bangladesh to provide operational support for gas plants for 2 years, and has been living in Covington, Louisiana for the last 4 years. His current role is Engineering Manager for a project which is the next major phase of development for the Tahiti spar. Christ and his wife, Sue have been enjoying Louisiana crawfish and are looking forward to their upcoming honeymoon in Italy.

**Elyse (Walker) Bealer**

Elyse has spent the last 10 years pursuing a fulfilling career at Merck on the East Coast. She has held several positions in manufacturing, marketing and business development. She currently serves as Director of the Merck Manufacturing Leadership Development Program.

Elyse has also enjoyed volunteering as the Chairwoman for the Pennsylvania local board of HOPE International since 2013. This non-profit micro enterprise institution has been at the center of investing in the dreams of the world’s underserved populations through savings and credit associations. It has been an adventure to travel to places like Turkey, Iraq and Rwanda in the last 10 years to participate in the work of HOPE.

Outside of work, she has been busy with her growing family. Elyse married Merrill Lynch financial advisor Stephen Bealer in 2008. They have been blessed with three beautiful children: son Bryce (age 4), daughter Adilyn (age 2), and newest addition, daughter Shaye, born in April of this year. Their latest adventure (besides having three kids under 5) is a 21 acre farm in Pennsylvania that they recently acquired. They are looking forward to building their dream home and raising lots of crazy kids and animals on the farm in the next 10 years.

**Geng Chen**

After Rice, Geng worked as a process engineer for Chevron. She subsequently decided that what this world really needs is more lawyers, and so after graduating from Harvard Law in 2014, moved to New York to join the firm Susman Godfrey. She currently practices both commercial litigation and the craft of looking aggressive yet approachable in headshots.

**Heather Dunsheath**

After Rice, Heather joined Bayer as a Pressure Relief System Designer. She currently works for Covestro as a Senior Process Safety Engineer in Baytown, Texas. Heather enjoys traveling, especially to Germany where she can inflict her self-taught German on the locals. In her free time she loves to read and converted a room in her house into a library for her many books.

**Bruce Eng & Kristin Youngless**

Since graduation in 2006, Bruce has been working for Air Liquide. Most of the time he’s been living in Houston but he did some short rotations to New Orleans, LA, Eugene, OR, and Rodeo, CA. Recent projects involve building a training simulator for plant operators and optimizing individual plants and the pipeline.

Kristin finished her ChBE degree in 2006 but stuck around for another year to get a degree from the Center for the Study of Women, Gender, and Sexuality. She started working full time for ExxonMobil in January 2007 as a drilling engineer. She has had roles in Angola, offshore California, the Black Sea, and the Gulf of Mexico.

Bruce and Kristin bought a house in Houston in 2009 and got married in the backyard in 2012. They’re still playing soccer and rock climbing. They also both participate in Big Brothers and Big Sisters. They enjoy traveling and try to do a multi week international trip each year. So far, they’ve made it to China, India, Costa Rica, Peru, Namibia / Zambia, Iceland, and Burma / S Korea. When home, walks with Pippi, their beagle mix, and cuddling with Prabby, the cat, are high priority.

On June 16, 2016, they welcomed their daughter, Alex Lee Youngless Eng. She’s doing well and learning quickly. They’re enjoying watching her grow up.

**David Kelvin**

David has been working as a facilities engineer for BP Upstream since graduating from Rice in 2006. He has worked in Durango, Colorado (2006–2007), offshore on a deepwater platform in the Gulf of Mexico (14 days on/14 days off rotation, 2007-2008) and in Houston supporting mostly Oklahoma and Texas assets. Recently, David has enjoyed being a part of
BP's relatively new, wholly owned subsidiary called the “Lower 48 Onshore” group. Work has become less bureaucratic and much more enjoyable ever since transitioning to this subsidiary. When not working, David enjoys spending time with friends, real estate investing, working out, and playing golf and tennis.

Scott Esterholm

Scott just celebrated his 10th anniversary with ExxonMobil – boy does time fly by quickly! “It seems like only yesterday we were channeling our creativity and business sense for Dr. Cox’s Sr. Design projects,” Scott said.

In 2006, Scott started with ExxonMobil’s Development Company in Houston as a reservoir engineer working mega scale, shallow offshore carbonates in the Caspian Sea. In this role, his primary function was reservoir simulation to both select the initial development concept and fine tune the asset's long term development plan.

In late 2010, Scott moved to the Production Company as the strategic planner for new assets in southern Iraq. As an expat, he lived in Dubai and rotated into Basra, working closely with his Iraqi counterparts (yes, security was always of utmost importance). His primary responsibility was to manage the annual plan and budget process for the production affiliate, but the biggest learnings involved insight into the management decision-making process (ie, how the company really works!) in his role as aide to top executives.

In late-2013, Scott returned to the USA, and western culture, as a reservoir engineer with XTO Energy (ExxonMobil addiliate) in Ft Worth. He leads teams in the Permian Basin of West Texas by defining the forward capital investment program and is actively involved in field surveillance to identify new production uplift opportunities. The fields are mature, conventional assets, so the primary focus of development is infill drilling, hydraulic fracturing, and the expansion of CO2 floods for tertiary recovery. As the industry continues to adjust to the lower commodity price environment, emphasis continues to be on surveillance to maximize base production, implementing efficiencies to reduce operating costs, and targeted capital investments to ensure the company comes out of the downturn stronger than ever.

Nastassja Lewinski

After graduation, Nastassja stayed at Rice to complete her Ph.D. in bioengineering. In 2011, she moved to Lausanne, Switzerland for 3 years to complete her post-doc at the Institute for Work and Health. Nastassja is currently an assistant professor in the department of Chemical and Life Science Engineering at Virginia Commonwealth University. She enjoys connecting with Rice alumni and is pictured here with Dean Barbara Boyan (Rice ’70, ’74, ’75), in Richmond, VA.
Commencement 2016
PhD Hooding Ceremony

**Front row, Left–Right:** Prof. Matteo Pasquali, Francesca Mirri, Wael Ahmed, Varun Shenoy Gangoli, Aarthi Muthaswamy, Prof. Michael Wong, Stacy Pesek, Bahar Salmian-Rizi, Lifeng Yang.

**Back row, Left–Right:** Prof. George Hirasaki, Prof. Rafael Verduzco, Prof. Clarence Miller, Prof. Deepak Nagrath

89 students were listed as receiving degrees from July 1st, 2015–June 30th, 2016.

- **68 Bachelors**
- **14 MS**
- **7 PhD**
Engineering Reception
Seniors and their families at the Engineering Reception proudly display their Capstone projects
Sibani Lisa Biswal
Associate Professor, Chemical & Biomolecular Engineering, Materials Science & NanoEngineering; Ph.D. Stanford, 2004
Interactions of colloidal particles with solid and liquid media, interfacial behavior of biomolecules.

Walter G. Chapman
W. W. Akers Professor, Chemical & Biomolecular Engineering; Associate Dean for Energy Research; Ph.D. Cornell, 1988
Thermodynamics, statistical mechanics, polymer solutions, surface fluid interactions, molecular simulations, gas hydrates, waxes and asphaltenes.

Kenneth R. Cox
Director, Undergraduate Studies; Professor in the Practice, Chemical & Biomolecular Engineering; Ph.D. Illinois, 1979
Product and process design, phase equilibria for advanced separations design.

Ramon Gonzalez
Professor, Chemical & Biomolecular Engineering, Bioengineering, Director, iBio Initiative; Ph.D. University of Chile, 2001
Metabolic engineering, functional genomics, systems biology, microbial fermentations, chemicals and fuels from renewables.

George J. Hirasaki
A. J. Hartsook Professor Emeritus of Chemical & Biomolecular Engineering, Research Professor; Ph.D. Rice, 1967
Foams and emulsions, aquifer remediation, NMR measured transport properties of fluids and rocks, enhanced oil recovery, gas hydrates and carbon capture.

Frederick C. MacKintosh
Abercrombie Professor of Chemical & Biomolecular Engineering, Professor, Chemistry, Physics & Astronomy; Ph.D. Princeton, 1989
Fundamental material properties of biological and soft matter networks.

Clarence A. Miller
Louis Calder Professor Emeritus, Chemical & Biomolecular Engineering, Research Professor; Ph.D. Minnesota, 1969
Interfacial phenomena, surfactants, foam, emulsions, aquifer remediation.

Deepak Nagrath
Assistant Professor, Chemical & Biomolecular Engineering; Ph.D. Renssler Polytechnic Institute, 2003
Nutritional systems biology, stem cells, cellular repair, metabolic and transcriptional networks, multi objective optimality and thermodynamic analysis of network biology.

Matteo Pasquali
Professor, Chemical & Biomolecular Engineering, Chemistry Department Chair; Ph.D. Minnesota, 1999
Micro- and nano-structured liquids, carbon nanotubes, free surface flows, computational modeling of processing flows.
Marc A. Robert
Professor, Chemical & Biomolecular Engineering; Ph.D. Swiss Federal Institute of Technology, Lausanne, 1980
Thermodynamics, interfacial phenomena, thin films, random media.

Laura Segatori
Associate Professor, Chemical & Biomolecular Engineering, Bioengineering, Biochemistry & Cell Biology; Ph.D. University of Texas at Austin, 2005
Molecular engineering of protein folding catalysts and chaperones.

Francisco Vargas
Assistant Professor, Chemical & Biomolecular Engineering; Ph.D. Rice University, 2010
Phase behavior and flow assurance.

Rafael Verduzco
Associate Professor, Chemical & Biomolecular Engineering, Materials Science & NanoEngineering; Ph.D. California Institute of Technology, 2007
Polymer design and synthesis, organic electronics, liquid crystals, and polymer self-assembly.

Michael S. Wong
Department Chair and Professor, Chemical & Biomolecular Engineering, Chemistry, Materials Science & NanoEngineering, Civil & Environmental Engineering; Ph.D. MIT, 2000
Catalysis, quantum dots, hollow microspheres, materials chemistry, green chemistry, nanotechnology.

Kyriacos Zygourakis
A. J. Hartsook Professor, Chemical & Biomolecular Engineering, Bioengineering; Ph.D. Minnesota, 1981
Cellular and tissue engineering, chemical reaction engineering, biochar for soil amendment, energy and sustainability.
The ChBE Alumni Advisory Committee was established in 2009 and has been active over the past 7 years supporting the ChBE department, alumni, and students. Over the past year we have set up sub-committees with focus on the following specific areas.

Networking and Events - Organizes networking events for students, alumni, and faculty along with the AICHE student chapter and Graduate Student Association (GSA). There are typically two per year – we help with the Chevron Lecture on Energy in the spring semester and put on the Alumni networking event in the fall, usually around homecoming.

Newsletter — Produces the annual ChBE Newsletter. This includes writing and collected articles, collecting alumni updates, editing, and coordinating the distribution of the newsletter to all Rice Chemical Engineering alumni.

Mentoring — Fosters and facilitates AICHE student chapter and ChBE GSA goals to bring students together with motivated alumni for mentoring activities, especially around support for job search, such as interviewing skills and resume reviews. Also includes engaging alumni and developing ideas for short-term mentoring activities.

Corporate and Development — Enhances long-term connections between companies, the department, and the Alumni Advisory Committee.

Website — Maintains the Alumni section of the ChBE website and organizes social media outreach to alumni.

We are always looking for enthusiastic alumni to help serve on the committee or work on projects. If you are interested in joining one of our Sub-committees, contact Charles Meyer (RiceChBEAlumSecretary@gmail.com).

As a reminder, we send out event reservation information through the Rice alumni office, so make sure your contact information is up to date on the online alumni directory (https://online.alumni.rice.edu).