2011 ANNUAL REPORT
Department of Chemical and Biological Engineering
Iowa State University
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DEPARTMENT OF CHEMICAL AND BIOLOGICAL ENGINEERING
IOWA STATE UNIVERSITY
ANNUAL REPORT 2011

The 2011 Annual Report from the Department of Chemical and Biological Engineering at Iowa State University documents relevant information and trends pertaining to its current students, faculty and staff during the 2011 calendar year.

FACULTY HIGHLIGHTS

Appointment

• Kaitlin Bratlie, assistant professor (joint with the Department of Materials Science and Engineering). Formerly a post-doctoral research associate at Massachusetts Institute of Technology.

Awards and Honors

• Eric Cochran, Karen and Denny Vaughn Faculty Fellowship.
• Eric Cochran, Early Career Engineering Faculty Research Award.
• Rodney Fox, Associate Editor of AIChE Journal.
• Chuck Glatz, University Professor.
• Surya Mallapragada, Young Alumni Achievement Award, India Institute of Technology-Bombay.
• Balaji Narasimhan, American Association for the Advancement of Science (AAAS) Fellow.
• Jacqueline Shanks, named to U.S. Department of Energy’s Biological and Environmental Research Advisory Committee (DOE BERAC).

STAFF HIGHLIGHTS

Appointments

• Shannon Grundmeier, academic advisor I (joint with the Department of Materials Science and Engineering). Formerly a financial aid advisor at the Iowa State University Financial Aid Office.
• Chris Neary, communications specialist II (joint with the Department of Civil, Construction and Environmental Engineering). Formerly a public information specialist at Aiken Technical College, Aiken, South Carolina.
UNDERGRADUATE PROGRAM

The CBE department saw undergraduate enrollment pass 500 for the first time ever with a fall 2011 enrollment of 554. In terms of diversity, percentage of underrepresented undergraduate student minorities is as high as it has ever been (14.4 percent). The number of international students also are at a record level at 16.9 percent. See tables below for a detailed enrollment trend since fall 2006.

This year CBE honored 202 undergraduate students with scholarships. Many received more than one as the scholarship awards totaled more than $350,000.

Students were active in several international programs, internships and cooperative education programs. Many participated in department student organizations to take advantage of professional networking, skill building and social development opportunities.

Enrollment and Diversity (Fall 2006 - Fall 2011, only fall semesters)

<table>
<thead>
<tr>
<th></th>
<th>Fall 2006</th>
<th>Fall 2007</th>
<th>Fall 2008</th>
<th>Fall 2009</th>
<th>Fall 2010</th>
<th>Fall 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>99</td>
<td>106</td>
<td>109</td>
<td>117</td>
<td>131</td>
<td>153</td>
</tr>
<tr>
<td>Sophomores</td>
<td>66</td>
<td>93</td>
<td>75</td>
<td>92</td>
<td>112</td>
<td>123</td>
</tr>
<tr>
<td>Juniors</td>
<td>92</td>
<td>88</td>
<td>105</td>
<td>82</td>
<td>96</td>
<td>115</td>
</tr>
<tr>
<td>Seniors</td>
<td>120</td>
<td>115</td>
<td>113</td>
<td>142</td>
<td>154</td>
<td>163</td>
</tr>
<tr>
<td>TOTAL</td>
<td>377</td>
<td>402</td>
<td>402</td>
<td>433</td>
<td>493</td>
<td>554</td>
</tr>
<tr>
<td>Male</td>
<td>237</td>
<td>243</td>
<td>250</td>
<td>274</td>
<td>308</td>
<td>358</td>
</tr>
<tr>
<td>Female</td>
<td>140</td>
<td>159</td>
<td>152</td>
<td>159</td>
<td>185</td>
<td>196</td>
</tr>
<tr>
<td>TOTAL</td>
<td>377</td>
<td>402</td>
<td>402</td>
<td>433</td>
<td>493</td>
<td>554</td>
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<tr>
<td>Minorities</td>
<td>43</td>
<td>41</td>
<td>43</td>
<td>43</td>
<td>65</td>
<td>80</td>
</tr>
<tr>
<td>U.S. non-minorities</td>
<td>310</td>
<td>330</td>
<td>328</td>
<td>356</td>
<td>361</td>
<td>380</td>
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<tr>
<td>Int’l students</td>
<td>24</td>
<td>31</td>
<td>31</td>
<td>34</td>
<td>67</td>
<td>94</td>
</tr>
<tr>
<td>TOTAL</td>
<td>377</td>
<td>402</td>
<td>402</td>
<td>433</td>
<td>493</td>
<td>554</td>
</tr>
</tbody>
</table>

Enrollment Trend, by gender (Fall 1953 - Fall 2011)
### Undergraduate Degrees Earned (2011 calendar year)

**Spring 2011**
- Julia Baray Alvarado
- Ashutosh Bhanot
- Samantha Chalfant
- Anna Clark
- Anna Cline
- Karrie Cooling
- Danielle Cram
- Emily Davenport
- Jacob Epstein
- Charles Ethington
- Maria Fabiosa
- Kelsey Gerdes
- Ann Gleason
- Christopher Griffin
- Chelsea Grillot
- Derek Grygiel
- Dan Harris
- Kathryn Hausman
- Grant Holdren
- Samantha Journot
- Erin Kelly
- Trent Lamar
- Donovan Layton
- Peggy Lee
- Meredith Little
- Molly Lohry
- John Lottes
- Charles Mangaali
- Emily Manternach
- Kendall McCallum
- Charles Nelson
-! Michael Nepple
- Luke Roling
- Nicholas Romsey
- Brittany Rover
- Zachary Runquist
- Jennifer Schoborg
- Rebecca Shaw
- Melinda Stivers
- Paul Stoick
- Angela Stoss
- Peter Strutzenberg
- Cheryl Tebben
- Stephanie Thompson
- Todd Thorson
- Daniel Usher
- Lindsey Vance
- Nathan Ver Heul
- Katharine Walz
- Bryce Williams

**Summer 2011**
- Matthew Stebbins
- Ryan Berg
- Zachary Stern
- Avni Sanghi
- Corey Schommer
- Erwin Columbus Hago

**Fall 2011**
- Brendan Babcock
- Christine Bauer
- Samantha Beary
- Eric Berger
- Elliot Combs
- Elizabeth De Hoedt
- Lars Ellingson
- Daniel Fisette
- Andrew Ford
- Yu Gao
- Alan Graves
- Joshua Hernandez
- Hubert Jie
- John King
- Nicole Larson
- Amanda Machacek
- Ryan Mumm
- James Ortiz
- Jesse Pullen
- Trent Ray
- Amy Sroka
- Zachary Stern
- Alene Vandermyde
- Nicholas Wetzel
- Jeffery Wilson
- Lee Ping Yeo
Trends in Enrollment and Degrees Granted (Undergraduate students)

<table>
<thead>
<tr>
<th>Year</th>
<th>Undergrad Enrollment</th>
<th>B.S. Degrees Granted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>285</td>
<td>42</td>
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<tr>
<td>1990</td>
<td>295</td>
<td>39</td>
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<td>1991</td>
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<td>1992</td>
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<td>1993</td>
<td>470</td>
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<td>1994</td>
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<td>1995</td>
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<td>1999</td>
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<td>85</td>
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<td>2000</td>
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<td>2001</td>
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<td>2002</td>
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<td>2007</td>
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<td>2008</td>
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<tr>
<td>2010</td>
<td>493</td>
<td>91</td>
</tr>
<tr>
<td>2011</td>
<td>554</td>
<td>78</td>
</tr>
</tbody>
</table>
Awards and Scholarships (2011 calendar year)

Scholar Athletes

Kianna Elahi (Track and Field)
Margaret Gannon (Track and Field)
Patrick McCaffery (Football)
Tiana Wollins (Swimming and Diving)

National Merit Scholars
Kimberly Booe
Pavel Brodskiy
Matthew Ellis
Nathan Fowler
Jennifer Freeland
Christina Goeddel
Megan Hingtgen
Parker Hoye
William Lohry
Shana Matthews
Katelyn Metzger
Stephanie Mulder
Brandi Newman
Amy Roggendorf
Eric Rowe
Nikhil Shah
Cole Smith
Sarah Sutter

Freshman Scholarship Recipients
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship
Ian Abarr
Alison Beck
Alison Clark
Courtney Dewell
Paul Gregory
Travis Hattery
Matthew Kenney
Philip Kuhlman
Moska Ommaid
Tobias Rains
Stephen Toddy
Michael Zimmerman
Ryan Gunckel
Angelica Iacobucci
Carrie Lehl
Mitchell Irlmeier
Tanner Jaeger
Megan Kleckler
Jessica Kuypers
Eric Lee
Rachel Lieser
Justin Miller
Brandon Morris
Rachel Morris
Blake Nichting
Sara Parupsky
Andrew Radencich
Janoni Ragothaman
Grace Ricker
Kelsey Schieltz
Amy Sheflet
Ryan Spellerberg
Ian Storey
Jordan Vetter
Daniel Wiegel

Engineering Undergraduate Merit Scholarship
Tina Akiy
Jessica Bangen
William Black
Joseph Cicchese
Jordan Donner
Veronica Elling
Taylor Francis
Caleb Gaudian
Spencer Gibson
Engineering Talent in Every County Scholarship
Lisa Barker
Alison Clark
Jennifer Freeland
Matthew Kenney
Alex Pettit
Kelsey Schieltz

Paul Emerson Morgan Scholarship
Taylor Datema

Stephen E. Simon Scholarship
Karen Dau

E2020 Scholarship
Adrian Gordon
Courtney Johnson
Alex Pettit
Erika Weimer

Ross White Engineering Scholarship
Eric Hessing
Tyler Johnson

John F. Stevens Scholarship
Jeremy Hilstrom

Ralph S. Millbone Scholarship
Parker Hoye
Shana Matthews
Eric Rowe
Sarah Sutter

Larry J. McComber Scholarship
Rachel Lieser

Tau Beta Pi Scholarship
Kelsey Schieltz

Engineering Undergraduate Scholarships
Kelsey Schieltz

Johnson Transfer Scholarship Program
Michael Stoker

Donald H. Beisner Scholarship in Honor of Dr. Morton Smutz
Thomas Teav

L.C. “Doc” & Lina Allen Scholarship
Audrey Wallace

Wickert Family Scholarship in Engineering
Caitlin Weber

Upperclass Scholarship Recipients
A. Douglas & Helen Steffenson Scholarship
Rafael Alameda

Alpha Chi Sigma Scholarship
Amber Hilderbrand

Archer Daniels Midland Company Scholarship
Olivia Aukes

Barbara L. Feroe Scholarship
Anna Dasilva

Benjamin Ma Scholarship
Matthew Ellis

Building a World of Difference Renewable Energy Scholarship in Engineering
Nicole Larson

Cargill Oveido Scholarship
Cody Berra
Courtney Crego
Jessie Dowding

Jacob Hemberger
Nicole Larson
William Lohry
Mazdak Ian Mina
Leonel Nguedon
Christopher Pedersen
Sarah Steffen
Michelle Wallace

CAT Engineering Leadership Program Scholarship
Christopher Jacobs

Caterpillar Foundation Scholarship
Veronica Bryant

Chadwick Morris Memorial Scholarship
Cody Berra
Courtney Crego
Jessie Dowding
Nicole Larson
William Lohry
Mazdak Ian Mina
Leonel Nguedon
Christopher Pedersen
Sarah Steffen
Michelle Wallace

Chemical Engineering Excellence Scholarship
Bo Johnson
Scott Lokkesmoe
Vadim Petruk
Fana Teffera
Semehar Tesfaye

Chemical Engineering Scholarship
Matthew Cole
Scott Meester
Ngoc Phan
Hai Tran
Zhiqian Huang
Dalton Hughes
August LaRenzie
Chika Okano
Kossi Sessou
Nikhil Shah
Jeff Wilson
Sean Vanosdale
Taylor Tomlinson
Andrew Walsh
Sara White
Tiana Wollin

David C. Lovell Scholarship
Daniel Grisard

Devin & Indira Shepard Scholarship
Carin Lightner

Don Delahunt Scholarship
Lisa Nelson
Kari Sylvester

Donald H. Beisner Scholarship in Honor of Dr. Smutz
Dalton Hughes
Burak Demirci
Edward McCoy
German Parada

Dow Chemical Company Scholarship
Elliot Combs
Matthew Ellis
Christina Goeddel
Emily Rickenbach

Dr. Owen A. Heng Chemical and Biological Engineering Scholarship
Horaleo Ukpan

E2020 Scholarship
Lizette Jimenez
John King
Ethan McGuire

Lauren Nelson
Samantha Sauerbrei

Edward W. & Joyce C. Backhaus Scholarship in Chemical & Biological Engineering
Ryan Unash

Engineering Student Leadership Development Scholarship
Christopher Grace

Engineering Undergraduate Merit Scholarship
Erin Claey
Austin Cocciocone
Amanda Cosgrove
Lindsey Debruijn
Casey Frank
Margaret Gannon
Meredith Gibson
Christopher Heitkamp
Andrew Hemken
Christopher Jacobs
Peter Joers
Brent Keller
Cassidy Leclaire
Christine Leise
Kaylyn Ludwig
Paul Lyrenmann
Sydney McKechnie
Cara Petrie
Sarah Randall
Erin Theros

Edwin John Hull Scholarship
John Skubic

Erwin and DeLoris Whitney Scholarship
Austin Christner
Korey Gramenz
Marissa Kruse
Chance Moore

Eugene Devere Travis Scholarship
Courtney Crego
Peter Joers
Brent Keller
Olivia Wilwert

Floyd Herman Cook Scholarship
Vania Romay

Frederick Martinson Scholarship
Todd Anderson-Calderon
Jordan Barr
Katelyn Dahlke
Daniel Ducharme
Lars Ellingson
Ethan Erickson
Daniel Grisard
Christopher Heitkamp
Jacob Hemberger
Andrew Hemkin
Nicholas Jaegers
Bradley Jimenez
Amanda Kavlie
Christopher Killingsworth
Jared Koliha
Cassidy Leclaire
Sydney McKenchie
Stephanie Mulder
Brent Novey
Daniel Potter
Heather Schulte
Tori Sorensen
Erin Theros
Maria Wahl
Michelle Wallace

Gretchen L. Bruffy Scholarship
John Renbarger

Griffen Family Scholarship
Justin Glasper

Hans Buehler Scholarship
Vania Romay

Jerrod S. & Mary R. Feroe Scholarship
Ryan Hall

Johnson-Engel Scholarship Endowment in Engineering
Heather Schulte

Kathy & Ken Garrett Scholarship
Abby Jensen

Kenneth & Mary Heilman Scholarship
Lindsay Berkenpas
Jordon Platte

Laurence T. & Jessie Davidson Gaylord Scholarship
Sabdiel Reyes

Lawrence E. Burkhart Scholarship
Christopher Pedersen

Lois and Manley Hoppe Scholarship
Alma Marquez
David Nguyen
Tori Sorensen
Erika Vaassen

Lyle J. & Marcia L. Higgins Scholarship
Abby Jensen
Amanda Kavlie
Jordon Platte
Emily Rickenbach

John Skubic

Manley R. Hoppe Scholarship
Christine Bauer
Cody Berra
Nicholas Bormann
Lindsey Debruin
Christine Leise
Amy Roggendorf

Mark Mennen and Vickie Smidt Mennen Memorial Scholarship
Derek Arnold

Maurice & Ruth Larson International Scholarship
Cody Berra
Courtney Crego
Jessie Dowding
Jacob Hemberger
Nicole Larson
Christopher Pedersen

Mike and Jean Steffenson Scholarship
Ryan Hall
Michelle Wallace
Heidi Welsh

Nicholas L. Reding/Monsanto Scholarship in Engineering
Timothy Clayton
Austin Lange
Sara Schaubroeck
Abdikadir Yussuf

Ralph Luebbers Scholarship
Taylor Struthers

Ralph S. Millhine Scholarship
Kimberly Booe
Pavel Brodskiy
Nathan Fowler
Megan Hingtgen
William Lohry
Katelyn Metzger
Brandi Newman
Cole Smith

Robert O. and Marie E. Dierks Scholarship
Samantha Beary

Rockwell Collins-Engineering Leadership Program Scholarship
Priya Desai
Nicholas Eddy
Michael Forrester
Debanjan Ghosh
Meredith Gibson
Sarah Maslo
Timothy Sprick
Taylor Tomlinson
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship
Breanna Gordon
Robert Hable
Kelly Markham
Sarah Maslo
Nicholas Wetzel

Ross White Engineering Scholarship
Collin Coon
Sydney Copley
Emily Schauer
Hannah Vanevery

Skogen-Hagenson Scholarship
Jessie Dowding
Amanda Machacek
Matthey McGrory
Lucas Palkert

Stuart M. Totty Scholarship
Taylor Bove

Tau Beta Pi Scholars Program Scholarship
Todd Anderson-Calderon
Katelyn Dahlke
August LaRenzie

Vander Linden Scholarship
Jeff Wilson
Student Organizations (2011-2012 academic year)

American Institute of Chemical Engineers (AIChE)
President, German Parada
Vice President, Courtney Crego
Secretary, Matt Smolen
Treasurer, Brandon Huth
Outreach Chair, Jude LaRenzie
Corporate Representative, Leo Ukpan
Webmaster, Nicholas Jaegers
National Conference Co-Chairs, Elliot Combs and Alene Vandermyde
ChE Car President, Blake Sorensen
Engineering Student Council Rep, Brandon Huth
Senior Rep, Nathan Hartman
Junior Rep, Mark Deaton
Sophomore Rep, Casey Frank
Freshman Rep, Joey Cicchese
Faculty Advisers, Drs. Aaron Clapp and Kenneth Jolls

National Organization of Black Chemists and Chemical Engineers (NOBCChE)
President, Julia Reiman
Vice President, Ryan Hall
Treasurer, Christian Tormos
Faculty Advisers, Drs. Derrick Rollins (ChE) and Malika Jeffries-El (Chemistry)

Omega Chi Epsilon
President, Sara Schaubroeck
Vice Presidents, Jenae Baumert and Abby Jensen
Secretary, Libby Wilwert
Treasurer, Nikhil Shah
Social Chair, Nicole Larson
Faculty Adviser, Dr. Laura Jarboe
Internships and Cooperative Education Programs

More than 200 employers from across Iowa, the United States and around the world participate in the Iowa State University Cooperative Education and Engineering Internship programs. The objective for the 2011-12 academic year is for all ChE undergraduates to have at least three months co-op or internship experience before graduation. Chemical engineering students who graduate with this experience consistently achieve higher placement rates with employers and higher average number of job offers. Firms providing cooperative and intern experiences for Iowa State chemical engineering students in 2011, as well as the number of students who participated at each company, are listed below.

Arizona Public Service
ATK Aerospace Systems
Burns & McDonnell
Chevron Phillips Chemical Company
Dow Chemical Company
General Mills
Grain Processing Corporation
Honeywell Corporation
LyondellBasell
Monsanto Company
Ryerson
Valero Renewables

TOTAL = 19 STUDENTS
International Studies (Study Abroad)

The Department of Chemical and Biological Engineering has established one of the most active international education programs at Iowa State University. The programs also have been recognized as some of the leading internationalization efforts by chemical engineering departments in the United States. Students have opportunities to choose several alternative courses of study: 1) student exchanges for one or two semesters at prominent chemical engineering departments in Europe; 2) a five-week summer laboratory course in Oviedo, Spain; and 3) international work experience in a globally-oriented corporation in combination with an academic exchange program (arranged through the College of Engineering International Engagement Office). Additional opportunities are available through the University Study Abroad Office.

University of Oviedo Summer Laboratory Course (Spain)
The summer foreign-study course is available to seniors, juniors and qualified sophomores. By participating in this program, students earn semester credits in ChE 391 and ChE 392 courses. This applies to the bachelor’s degree requirements at Iowa State.

This five-week summer program, taught in English, offers students the opportunity to complete the unit operations laboratory sequence at the University of Oviedo and to compare technical and cultural aspects of the U.S. and Spain. There also are ample opportunities to travel on the continent. Iowa State shares the Oviedo program with students from the University of Wisconsin. Both U.S. and Spanish chemical engineering faculty are involved.

Iowa State students who participate earn seven (7) credits in ChE 391 and ChE 392 combined, which substitutes for the on-campus ChE 325 and ChE 426/427. Credits are given based on the following:

1. A one-credit orientation course (ChE 391A) taken during the preceding spring semester at Iowa State.
2. Lectures attended, laboratory experiments performed, and industrial-style reports written during the five-week program at the University of Oviedo (ChE 392).
3. Visits to Spanish chemical industry and research laboratories during the five weeks of residence (ChE 391B).

The seven (7) semester credits may be substituted as follows in the ChE curriculum:

1. ChE 325, ChE 426 (4 credits maximum)
2. S.S.H. electives (3 credits maximum)

The costs of the program, excluding personal expenses and U.S.-Europe transportation, are currently about $5,600. Loans and foreign study grants are available to qualified applicants.

Final applications are due each year before Thanksgiving. Students selected are notified before the end of the fall semester.

International University Exchanges
The Department of Chemical and Biological Engineering coordinates or participates in two highly successful student exchanges with international universities. The reciprocal exchange agreements involve leading chemical engineering departments in Europe: Swiss Federal Institute of Technology-Lausanne/University of Lausanne (Switzerland) and University College London (United Kingdom).

Students generally attend for one or two semesters, perhaps with a travel period coordinated with university schedules. Coursework is sufficiently similar at these universities to enable students to continue their degree programs without interruption upon return to Iowa State. The longer duration of these exchanges allows students to develop a better cultural and societal understanding of the country and to participate more fully in a new academic experience. Most students have formed lasting contacts with classmates and faculty.

The programs are organized according to Iowa State procedures that involve:

• Applying for the program at specific dates
• Registering for the specific university exchange program through Iowa State University
• Paying normal fees to Iowa State University, but selecting coursework at the international university – no tuition or academic fees are paid to the international university
• Providing personal transportation expenses, living costs and other individual needs
• Transferring credit for the courses to Iowa State
The specific arrangements for each program differ slightly. Please contact the program coordinator for each exchange. See a list at [www.engineering.iastate.edu/studyabroad](http://www.engineering.iastate.edu/studyabroad) of all international programs that the College of Engineering offers.

**Swiss Federal Institute of Technology-Lausanne/University of Lausanne (France)**

This exchange program with two institutions in Lausanne, Switzerland, has been operating since 1984. Students stay for one semester (mid-September to December, or February to late June) or two semesters (mid-September to late June). Almost all lower-level instruction is in French. Some upper-level instruction is in English. The EPFL, as it is referred to in French, has a world-class chemical engineering program and most other engineering and science curricula. It also offers scholarships of 4,500 Swiss Francs (about $5,000 USD at the present exchange rate) to Iowa State students who participate for two semesters and 2,000 Swiss Francs (about $2,200 USD at the present exchange rate) for those participating in one semester. University of Lausanne offers some science curricula and many humanities and business curricula.

This program is coordinated by Iowa State Anson Marston Distinguished Professor Dr. Peter Reilly. He can be reached at reilly@iastate.edu or 515 294-5968.

**University College London (United Kingdom)**

An exchange program for chemical engineering sophomores, juniors and seniors has been established with Iowa State’s Department of Chemical and Biological Engineering, as well as University College London’s biochemical engineering and chemical engineering departments. This program allows up to two students each year to complete their academic year at University College London in central London, England, U.K. Vice-versa, students from University College London can attend Iowa State. The full academic year is required because of the British system of courses and exams. The program also has the possibility for seniors to go for a single semester with a research project emphasis combined with a limited selection of single-term courses. Students participating enroll and pay fees to their home institution. The principal additional cost is transportation to London, as well as transportation to Ames, Iowa, for British students.

The most recent participants from Iowa State were Alene Vandermyde (2009-10) and Anna DaSilva (2008-09). Two biochemical engineering students from University College London who recently participated were Sarah Hedberg and Abdulrahman Ahmadi during the 2010-11 academic year.

This program is coordinated by Iowa State University Professor Dr. Charles Glatz. He can be reached at cglatz@iastate.edu or 515 294-8472.
GRADUATE PROGRAMS

Graduate study in chemical and biological engineering is an exciting, challenging and rewarding undertaking. At Iowa State University we provide a supportive and stimulating environment for advanced study by combining a broad-based research program, excellent faculty and a population of superb graduate students. Both the academic and the industrial communities recognize the consistently high quality of the chemical engineering graduate program. The faculty in the department are acknowledged leaders of research and teaching in a several areas including biorenewable chemicals, biorenewable energy, healthcare technology, advanced materials, biochemical engineering, catalysis and reaction engineering, computational fluid dynamics, biomedical engineering and biobased products.

Since 1998, the department has hired 14 new faculty members, 12 of whom are in the biological area. Eight faculty members are recipients of young investigator awards from the National Science Foundation, the U.S. Department of Energy, the Office of Naval Research, the Dreyfus Foundation, and the Whitaker Foundation. The department's research expenditures exceeded $13.6 million* in FY2011. External support for the graduate program comes from more than 40 federal and state agencies and industrial firms, as well as from alumni and friends of the department.

The CBE department has more than 52,900 square feet of modern laboratory and office space, including Sweeney Hall and the Biorenewables Research Laboratory Building that opened in 2010. The department was granted $2 million from the National Science Foundation to renovate the research laboratories in Sweeney Hall; work began in October 2011 and will finish in late spring 2012. We are home to the W. M. Keck Laboratory for High Throughput Atom-Scale Analysis, which features an atom probe microscope – one of the few in academic institutions across the country. The department has close associations with many university-wide research centers: a National Science Foundation Engineering Research Center, the Center for Biorenewable Chemicals (CBiRC), the Office of Biotechnology, the Ames Laboratory (a U.S. Department of Energy National Laboratory that is located on the ISU campus), the Bioeconomy Institute and the Plant Sciences Institute. In addition, the community offers a pleasant and congenial academic setting with easy access to larger metropolitan cities such as Des Moines, Minneapolis, Kansas City and Chicago.

Our graduate program attracts students from all over the United States and throughout the world. In recent years, approximately 10 percent of our graduate students have been M.S. candidates and the rest are Ph.D. candidates. The department now offers a coursework-based Master of Engineering degree for which all the classes can be taken online. Our students are strong competitors for several departmental and university-wide fellowships from a variety of sources. With the population of 54 graduate students and 20 full-time faculty members, the department maintains a moderate number of students per faculty member, ensuring a high quality mentoring relationship. Because of our excellent students and the reputation of the department, our graduates continue to be in demand by both industrial and academic employers.

Graduate Student Enrollment (Fall 2011)

<table>
<thead>
<tr>
<th>Male</th>
<th>37</th>
</tr>
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<tbody>
<tr>
<td>Female</td>
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<td>U.S. Citizens</td>
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<tr>
<td>International Students</td>
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<td>TOTAL</td>
<td>54</td>
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</table>
## Graduate Student Roster (Fall 2011)

<table>
<thead>
<tr>
<th>Student</th>
<th>Major Professor</th>
<th>Undergrad/Grad School</th>
<th>Matriculated</th>
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</thead>
<tbody>
<tr>
<td>Adams, Justin</td>
<td>Surya Mallapragada</td>
<td>University of Nebraska</td>
<td>Fall 2010</td>
</tr>
<tr>
<td>Anderson, Jason</td>
<td>Brent Shanks</td>
<td>South Dakota School of Mines</td>
<td>Fall 2009</td>
</tr>
<tr>
<td>Baker, Michael</td>
<td>Rodney Fox</td>
<td>University of Iowa</td>
<td>Fall 2011</td>
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<tr>
<td>Behm, Mark</td>
<td>Monica Lam</td>
<td>Iowa State University</td>
<td>Fall 2011</td>
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<tr>
<td>Bergman, James</td>
<td>Jennifer O’Donnell</td>
<td>Clemson University</td>
<td>Fall 2008</td>
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<tr>
<td>Brewer, Catherine</td>
<td>Robert Brown</td>
<td>Indiana University of Pennsylvania</td>
<td>Fall 2007</td>
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<tr>
<td>Brown, Mark</td>
<td>Jacqueline Shanks</td>
<td>University of Iowa</td>
<td>Fall 2009</td>
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<tr>
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<td>Tecnologico de Monterrey – Mexico</td>
<td>Fall 2008</td>
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<tr>
<td>Capfraz, Omer</td>
<td>Kurt Hebert</td>
<td>Middle East Technical University</td>
<td>Fall 2010</td>
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<td>Fall 2011</td>
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<td>Peter Reilly</td>
<td>Shanghai Jia Tong University</td>
<td>Fall 2010</td>
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<tr>
<td>Choi, Yonguck</td>
<td>Brent Shanks</td>
<td>California State University – Long Beach</td>
<td>Fall 2010</td>
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<td>Deutsch, Keenan</td>
<td>Brent Shanks</td>
<td>Iowa State University</td>
<td>Fall 2007</td>
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<td>El Hedok, Ibrahim</td>
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<td>Ian Schneider</td>
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<td>Fall 2008</td>
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<td>Tsinghua University</td>
<td>Fall 2009</td>
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<td>Fall 2009</td>
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<td>Fall 2007</td>
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<td>Mei, Yong</td>
<td>Derrick Rollins</td>
<td>Tianjin University</td>
<td>Fall 2011</td>
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<td>University of Minnesota</td>
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<td>Ray, Trent</td>
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<td>Shi, Yanxiang</td>
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Trends in Enrollment and Degrees Granted (Graduate students)

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<tr>
<th>Year</th>
<th>Number of students</th>
<th>M.S. Degrees Granted</th>
<th>M.Eng. Degrees Granted</th>
<th>Ph.D. Degrees Granted</th>
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<tr>
<td>2011</td>
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Master’s Degrees Awarded (M.S. and M.Eng.)

![Graph of Master’s Degrees Awarded (M.S. and M.Eng.)](image)
Doctor of Philosophy Degrees Awarded

Degree Recipients, Current Employment

Master of Science degrees

<table>
<thead>
<tr>
<th>Name</th>
<th>Employer</th>
<th>Dissertation Title and Adviser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ana Chavez-Santoscoy</td>
<td>N/A</td>
<td>High throughput design of functionalized nanoparticles for targeted vaccine delivery (Narasimhan)</td>
</tr>
<tr>
<td>Emily Davenport</td>
<td>Washington State University (graduate assistant)</td>
<td>Purification of Flaven-3-ol Biosynthesis for Co-localization on to nanocarriers and a multi-enzyme assay (Mallapragada)</td>
</tr>
<tr>
<td>Brandon Franck</td>
<td>N/A</td>
<td>Functional materials from hierarchically ordered polymer nanocomposites (E. Cochran)</td>
</tr>
<tr>
<td>Kaylee Kotz</td>
<td>Washington State University (graduate assistant)</td>
<td>Multiple disturbance modeling and predicting of blood glucose in Type 1 Diabetes Mellitus (Rollins)</td>
</tr>
<tr>
<td>Yanfen Fu</td>
<td>N/A</td>
<td>Metabolic flux analysis of Escherichia coli MG1655 under octanoic acid (CB) stress (J. Shanks)</td>
</tr>
<tr>
<td>Newira Widharta</td>
<td>Kemin Industries</td>
<td>Use of colloidal crystal templating to fabricate ordered pit arrays on aluminum and aluminum alloy 3003 (Hebert)</td>
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Doctor of Philosophy degrees

<table>
<thead>
<tr>
<th>Name</th>
<th>Employer</th>
<th>Dissertation Title and Adviser</th>
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</thead>
<tbody>
<tr>
<td>Pedro Ortiz-Toral</td>
<td>Gas Technology Institute</td>
<td>Steam reforming of water-soluble fast pyrolysis bio-oil; Studies on bio-oil composition effect, carbon deposition and catalyst modifications (B. Shanks)</td>
</tr>
<tr>
<td>Latrisha Kay Petersen</td>
<td>Iowa State University (postdoc)</td>
<td>Combinatorial design and development of biomaterials for use as drug delivery devices and immune adjuvants (Narasimhan)</td>
</tr>
<tr>
<td>Bingqi Zhang</td>
<td>N/A</td>
<td>Self-assembled pentablock copolymers for selective and sustained gene delivery (Mallapragada)</td>
</tr>
<tr>
<td>Brenda Carrillo-Conde</td>
<td>University of Texas-Austin (postdoc)</td>
<td>Engineering amphiphilic polyanhydride particle platform for targeted drug and vaccine delivery (Narasimhan)</td>
</tr>
<tr>
<td>Seung Ha Kim</td>
<td>University of California-Santa Barbara (postdoc)</td>
<td>Multi-scale modeling for complex macromolecular systems: Methodologies and applications (Lamm)</td>
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<tr>
<td>Yanjie Zhang</td>
<td>Iowa State University (postdoc)</td>
<td>N/A (Clapp)</td>
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</table>

Average salaries for chemical engineering 2011 M.S. graduates: $70,333 (Midwest), $72,000 (National)
Average salaries for chemical engineering 2011 Ph.D. graduates: $79,951 (Midwest), $86,954 (National)

*Figures are based on a 2011 survey by the National Association of Colleges and Employers (NACE).
Chemical Engineering Graduate Student Organization (CEGSO)

Chemical Engineering Graduate Student Organization (CEGSO) is an informal organization of Iowa State chemical engineering graduate students. As a group they sponsor educational, social and professional activities. They are involved in any departmental areas that affect graduate students, including acquisition of new computers and software for the graduate computing lab. CEGSO sponsors a library of technical books available for graduate student use. They also are a key player in promoting chemical engineering graduate student research to potential employers.

In terms of community service, CEGSO promotes science and engineering at various campus-community events, like VEISHEA. At 2011 VEISHEA they demonstrated experiments with the non-Newtonian fluid, gak, Mentos-soda reactions, and ignition without flame.

Socially, CEGSO sponsors spring, summer and fall picnics, an annual winter bowling party, potlucks, and occasional road trips for skiing and canoeing.

Officers and representatives

<table>
<thead>
<tr>
<th>POSITION</th>
<th>REPRESENTATIVE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Catie Brewer</td>
</tr>
<tr>
<td>Vice President</td>
<td>Nacu Hernandez</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Cansheng Yuan</td>
</tr>
<tr>
<td>Secretary</td>
<td>Julia Vela Ramirez</td>
</tr>
<tr>
<td>Webmasters</td>
<td>Nacu Hernandez, Ibrahim El-Hedok and Michael Nolan</td>
</tr>
<tr>
<td>Social Chairs</td>
<td>Keenan Deutsch, Ibrahim El-Hedok and Daniel Flores Espronceda</td>
</tr>
<tr>
<td>Seminar Coordinator</td>
<td>Nacu Hernandez</td>
</tr>
<tr>
<td>Safety Committee Member</td>
<td>Jason Anderson, Keenan Deutsch and Kathleen Ross</td>
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<tr>
<td>Curriculum Committee</td>
<td>Catherine Brewer, James Bergman and David Cantu</td>
</tr>
<tr>
<td>Cyberinfrastructure Committee</td>
<td>Nacu Hernandez, Ibrahim El-Hedok and Michael Nolan</td>
</tr>
<tr>
<td>Grad Program Committee &amp; Visitations</td>
<td>David Cantu, Daniel Flores Espronceda and Joseph Petefish</td>
</tr>
<tr>
<td>Undergraduate Recruiting &amp; Retention Committee</td>
<td>Liam Royce and Ryan Swanson</td>
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<tr>
<td>Faculty Search Committee</td>
<td>Feng Jia, Ibrahim El-Hedok</td>
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<tr>
<td>GPSS Representative</td>
<td>Ryan Swanson and Keenan Deutsch</td>
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<tr>
<td>Community Outreach/VEISHEA</td>
<td>Julia Vela Ramirez and Subramaniam Venkatachalam</td>
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<tr>
<td>Networking</td>
<td>Tianfu Wang and Feng Jia</td>
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<tr>
<td>Recycling Committee</td>
<td>Shannon Haughey, Keenan Deutsch and Subramaniam Venkatachalam</td>
</tr>
<tr>
<td>Dean’s Committee</td>
<td>Kathleen Ross</td>
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<tr>
<td>Constitution Committee</td>
<td>Catherine Brewer, Nacu Hernandez, Julia Vela Ramirez and Cansheng Yuan</td>
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<tr>
<td>Faculty Adviser</td>
<td>Monica Lamm</td>
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## Graduate Admissions (listed by calendar year)

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<td>34</td>
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</tr>
<tr>
<td>2011</td>
<td>188</td>
<td>29</td>
<td>12</td>
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</tbody>
</table>

### Average Graduate Record Examination (GRE) Scores – 2011 admitted students

- Verbal – 463
- Quantitative – 764
- Analytical – 3.63
POSTDOCS, VISITING SCIENTISTS AND SCHOLARS

Pooja Arora, postdoc (Dr. Monica Lamm)
Dr. Arora has a Ph.D. in physical chemistry from Iowa State University. She joined the department in 2010. Her research involves multiscale computations of protein structure and function. Her work is sponsored by the Department of Energy Ames Laboratory.

Wei Bai, postdoc (Dr. Rodney Fox)
Dr. Bai started his research work as a post-doctoral research associate at Iowa State University in June. His work mainly focuses on fluidized bed modeling which is related to biomass-based renewable energy application. He obtained his Ph.D. at Eindhoven University of Technology in the Netherlands in 2010.

William Colonna, assistant scientist II (Dr. Charles Glatz/Dr. Surya Mallapragada)
Dr. William Colonna started his Iowa State career in 2003 at the Department of Food Science and Human Nutrition. After a research experience at the Iowa Department of Agriculture, he returned to Food Science in 2007. Colonna then teamed with Dr. Charles Glatz in 2008, working on biosurfactants. In the lab he grows biosurfactants, or genetically modified microbes, which can be applied to cosmetics and other personal care products. Most recently he feeds the microbes soybean hulls, which creates a microbe byproduct that can be applied to cleaning oil spills more effectively. Working with Dr. Surya Mallapragada, Bill experiments with enzymes involved in flavanoid biosynthesis. He also mentors undergraduate researchers on lab procedures and techniques. Bill earned a B.S. in biology at Fairfield University (Connecticut), an M.S. in biology from Fordham University (New York) and a Ph.D. in biochemistry from Rutgers University (New Jersey).

Jie (Jacky) Fu, postdoc (Dr. Brent Shanks)
Jacky received his Ph.D. degree from Zheijing University, China. During his Ph.D. work he spent two years at the University of Michigan in the lab of Professor Phil Savage. His project involves the aqueous phase reforming of bio-oil model compounds.

Kumar Kautharapu, postdoc (Dr. Laura Jarboe)
Kumar B. Kautharapu has a Ph.D. in biochemistry from Chemical Engineering and Process Development Division, National Chemical Laboratory (NCL), Pune, India. He is working on “sequencing and metabolic characterization of a bacterial species with the goal of biorenewable nutraceutical production,” a project that is funded by Metabolic Technologies, Inc., Ames, IA.

Meng Kong, visiting scholar (Dr. Thomas Wheelock)
Meng is a visiting scholar, earning a Ph.D. in chemical engineering from both Iowa State University and Zhejiang University in China. His main project deals with the development of a catalyst/sorbent for methane reforming, led by co-PIs Professor Brent Shanks and University Professor Emeritus Thomas Wheelock.

Sergiy Markutsya, postdoc (Dr. Monica Lamm)
Dr. Markutsya has a Ph.D. in mechanical engineering from Iowa State University. He joined the department in 2010. His research involves the development of multiscale models for lignocellulose structure to be used with first principles ab initio computations of lignocellulose hydrolysis. His work is sponsored by the Department of Energy Ames Laboratory.

Mustafa Esen Marti, visiting scientist (Dr. L. K. Doraiswamy/Dr. Charles Glatz/Dr. Surya Mallapragada)
Mustafa began as a Visiting Scientist in November 2008 while a Ph.D. student in chemical engineering at the Middle East Technical University in Ankara, Turkey. While at ISU he is working on reactive extraction of carboxylic acids with Professor L. K. Doraiswamy and recovery of recombinant proteins with University Professor Charles E. Glatz. Upon completion of his Ph.D., Dr. Marti rejoined the Glatz lab as a postdoctoral associate. In that role he is developing a fermentation process for a biosurfactant with potential for oil dispersion in oil spills. Under Professor Surya Mallapragada, Dr. Marti is working on bridging gaps in peripheral nerve injuries using stem cells and biomaterials.

Alberto Passalaquca, postdoc (Dr. Rodney Fox)
Alberto joined the department as a post-doctoral research associate in January 2008. His research project focuses on the development and the implementation of computational models based on the quadrature method of moments to solve the Boltzmann kinetic equation, with applications to granular gases, granular flows and fluidization. He has a master's degree in chemical engineering from Politecnico di Torino, where he also obtained his Ph.D. before joining the department.

Latrisha Petersen, postdoc (Dr. Balaji Narasimhan)
Latrisha has been with the department since her freshman year in fall 2003. She earned her bachelor of science in chemical engineering in 2007, and soon excelled as a graduate student. In 2011 alone she got second place prize in the AIChE Bionanotechnology Graduate Student Competition and ISU Graduate Research Excellence Award with her research on the
rational design of pathogen mimicking amphiphilic nanoparticle adjuvants. In spring 2011 she earned her Ph.D. in chemical engineering. As a postdoctoral research associate, Latrisha wrote seven papers within the area of bionanotechnology with Associate Dean for Research and Professor Balaji Narasimhan.

**Tanya Prozorov, assistant scientist III (Dr. Surya Mallapragada)**
Dr. Tanya Prozorov joined the U.S. Department of Energy Ames Laboratory in 2005. Her education includes a M.S. in Physical and Chemical Studies of Metallurgical Processes at the National University of Science and Technology – Moscow Institute of Steel and Alloys; M.S. in Physical Chemistry at Bar-Ilan University in Israel; and a Ph.D. in Materials Chemistry at University of Illinois at Urbana-Champaign. She works in bioinspired magnetic nanoparticle synthesis using bacterial mineralization proteins. In 2011, she received the U.S. Department of Energy Early Career Award. Dr. Prozonov plans to establish her own laboratory at the Ames Lab.

**Qingluan Xue, postdoc (Dr. Rodney Fox)**
Qingluan started his appointment as a postdoctoral research association in September 2009. His research is on development and implementation of chemical models in multi-fluid solver for modeling biomass gasification in fluidized beds. He received his Ph.D. in mechanical engineering from Iowa State University in 2009.

**Jong Moon Yoon, assistant scientist III (Dr. Jacqueline Shanks)**
Jong Moon has a B.S. in Chemical Engineering from Yonsei University and an M.S. in chemical engineering from Pohang University of Science and Technology from South Korea. He received his Ph.D. under the direction of Professor Jerald Schnoor in Civil and Environmental Engineering from the University of Iowa in 2004. He is working with Professor Jacqueline Shanks as a postdoctoral research associate for CBiRC. He was promoted to research scientist in fall 2010.

**Yanjie Zhang, postdoc (Dr. Aaron Clapp)**
Yanjie came to Iowa State as a Ph.D. candidate in fall 2006. She earned a B.S. in chemical engineering from East China University of Science and Technology. In 2011 she earned a Ph.D. in chemical engineering here at Iowa State. After graduating in the spring she co-authored two papers with Assistant Professor Aaron Clapp regarding quantum dot nanocrystals and fluorophores.
FACULTY ACTIVITIES

Kaitlin M. Bratlie
Assistant Professor
B.S., Chemistry, University of Minnesota, Institute of Technology, 2003
Ph.D., Physical Chemistry, University of California, Berkeley, 2007
3111 Gilman/2220Q Hoover
4-7297/4-7304
kbratlie@iastate.edu

Research Interests
Collagen formation surrounding a polymer both in vitro and in vivo, activation of complement - one of the first lines of defense of the immune system - at interfaces, and enzyme activation on biomaterials.

Teaching

<table>
<thead>
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<th>Semester</th>
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<th>Course Name</th>
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<tr>
<td>S 2011</td>
<td>MatE 351</td>
<td>Introduction to Polymeric Materials</td>
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</table>

Research and Scholarship

Publications

Proposals Submitted
K. M. Bratlie (PI), “In Vivo Imaging of Fibrosis to Elucidate Biomaterial-Tissue Interactions,” Searle Scholars Program, 7/1/2012-6/30/2015, $300,000 (pending).
Office of Naval Research Young Investigator Program, 4/1/2012-3/31/2015, $510,000 (pending).

Invited Presentations
Northwestern University, Department of Chemistry
New York University, Department of Chemistry
Washington University, Department of Bioengineering
Columbia University, Department of Chemical Engineering
Lehigh University, Department of Chemical Engineering
Wayne State University, Department of Chemical Engineering
University of California, Irvine, Department of Chemical Engineering & Materials Science
University of California, Santa Barbara, Department of Chemical Engineering

Contributed Presentations
“Engineering Better Biomaterials to Reverse Type 1 Diabetes,” MRS National Meeting, Synthetic and Biological Gels Symposium.

Institutional Service
University
Member, Innovative, Integrated Health Initiative or One Health Committee

Department
Member, Materials Science and Engineering Department Graduate Studies Committee
Aaron Clapp
Assistant Professor
B.S., Chemical Engineering, University of Minnesota, 1996
M.S., Biomedical Engineering, University of Florida, 2000
Ph.D., Chemical Engineering, University of Florida, 2001
3033 Sweeney Hall
4-9514
clapp@iastate.edu

Research Interests
Nanoscale materials (synthesis and applications), interfacial phenomena, biomedical engineering, biosensing

Teaching
Semester Course No. Course Name
S 2011 ChE 310 Computational Methods for ChE

Advising
Undergraduate Students - Advised 20 students. Mentored 2 undergraduate research students.
Graduate Students - Supervised 1 Ph.D. student.
Degree Awarded - Yanjie Zhang, Ph.D.

Research and Scholarship
Publications

Proposals Submitted

Continuing Projects
Development of compact water-soluble ligands for quantum dot nanocrystals
Single molecule imaging of protease activity on surfaces
Synthesis and characterization of polymer encapsulated quantum dots for high speed flow imaging, optical barcoding applications

Invited Presentation

Contributed Presentation

Citations for 2011
379 citations in articles published in 2011 per Web of Science search
2781 citations total (all years)
H-number: 17

Institutional Service
Department
Recruitment and Retention Committee
Eric W. Cochran
Assistant Professor
B.A., Mathematics, Iowa State University, 1998
B.S., Chemical Engineering, Iowa State University, 1998
Ph.D., Chemical Engineering, University of Minnesota - Twin Cities, 2004
1035 Sweeney Hall
4-0625
ecochran@iastate.edu

Research Interests
Equilibrium and dynamic properties of polymeric systems that undergo self-assembly at pertinent length scales ranging from nanometers to microns. Guiding principles in systems that feature multiple self-assembly processes.

Teaching
<table>
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<td>S 2011</td>
<td>ChE 442</td>
<td>Polymers &amp; Polymer Engineering</td>
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Advising
Undergraduate Students - Advised 29 students. Mentored 3 undergraduate research students.
Graduate Students - Supervised 1 M.S. and 3 Ph.D. students.

Research and Scholarship
Publications
IP Disclosure (Patent Application Pending): ISURF #03949—“Thermoplastic Elastomers via Atom Transfer Radical Polymerization of Soybean Oil.”

Proposals Submitted
E. W. Cochran (PI), “Modification of Maltodextrins by reactions with sucrose and dextran sucrose,” Archer-Daniels Midland, $52,000.
E. W. Cochran with C. Williams (co-PI), “Development of Biobased Polymers for Use in Asphalt,” Iowa Department of Transportation, $150,000.

Proposals Accepted
“Modification of Maltodextrins by reactions with sucrose and dextran sucrose,” Archer-Daniels Midland, $52,000.
“Development of Biobased Polymers for Use in Asphalt,” Iowa Department of Transportation, $150,000.

Continuing Projects
Poly(triglyceride) based Thermoplastic Elastomers via Controlled Radical Polymerization
Structure-Property Relationships of Layered-Silicate/Block Copolymeric Nanocomposites via Self-Assembly
Block Copolymer Nanocomposites: Thermodynamics and Structure-Property Relationships
High-Activity Fuel Cell Catalyst Layers via Mesoporous Block Copolymer Nanocomposites
Field Theoretic Simulations of Heterogeneous Polymer Nanocomposites and Polyelectrolytes

Institutional Service
University
Session Chair, University Honors Symposium
College
Member, Honors Committee
Department
Member, Cyberinfrastructure Committee
Member, Graduate Committee

Professional Service
NSF Mail Reviewer, DMR-Polymers Materials World Network
Beamtime proposal reviewer, SSRL
Proposal review, DoD-EPSCoR South Carolina
Session Chair for American Physical Society
Referee for Peer Reviewed Journals and Proposals
Macromolecules, Top 25% Reviewer
Soft Matter
Langmuir
Polymer
Journal of Chemical Physics
Chemical Physics Letters
National Science Foundation

Rodney O. Fox
Anson Marston Distinguished Professor
Herbert L. Stiles Chair of Chemical Engineering
B.S., Chemical Engineering, Kansas State University, 1982
M.S., Chemical Engineering, Kansas State University, 1985
Ph.D., Chemical Engineering, Kansas State University, 1987
3162B Sweeney Hall
4-9104
rofox@iastate.edu

Research Interests
Our research focuses on the development, implementation and validation of computational fluid dynamics (CFD) tools for Chemical Reaction Engineering. With the ever-increasing power of desktop computers, CFD has become a powerful tool for chemical reactor analysis, design and optimization in the chemical process industry. Its successes have led to a growing demand for greater sophistication and range in the types of problems that can be treated. Thus, the elaboration of accurate yet tractable models for the manifold physical and chemical processes that occur in industrial-scale reactors is still very much an open and challenging field of inquiry. In attacking these problems, our modeling efforts draw on a large range of tools originating in diverse fields including probability theory and stochastic processes, non-linear dynamics, computational science and engineering, chemical reaction engineering, and transport phenomena.

Teaching
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<tr>
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<td>Transport Phenomena I</td>
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<td>F 2011</td>
<td>ChE 546A</td>
<td>Analytical &amp; Numerical Methods</td>
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Advising
Undergraduate Students - Advised 24 students. Mentored 3 undergraduate research students.
Research and Scholarship

Publications


Proposals Submitted


Proposals Accepted

“Modeling of Reacting Multiphase Flows with MFIX,” U.S. Department of Energy National Energy Technology Laboratory, $185,000.


“CFD Studies of Loop Slurry Reactor,” Chevron Phillips Chemical Company, $290,000.
Continuing Projects
"Microscale Reactor CFD Model Validation Using Direct Numerical Simulations, High-Speed MicroPIV, and Reactive Laser-Induced Fluorescence," National Science Foundation.

Invited Presentations
"CFD models for mixing-limited chemical reactions," Plenary Lecture, CFD, Dortmund, Germany.
"Kinetic theory models for multiphase flows," Departmental Seminar, Institut Jean Le Rond D’Alembert, Université Paris 6, Paris, France.
"Kinetic theory models for multiphase flows," Departmental Seminar, Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge, England.
"Quadrature-based moment methods," Invited Seminar, ONERA, Toulouse, France.
"Advanced CFD models for multiphase flows," Company Seminar, BP Chemicals, Naperville, IL.

Contributed Presentations
W. Bai, T. J. Heindel, and R. O. Fox, “Segregation and the solid-solid drag term,” AIChE Annual Meeting, Minneapolis, MN.
Q. Xue, T. J. Heindel, and R. O. Fox, “CFD modeling of biomass fast pyrolysis in fluidized-bed reactors,” AIChE Annual Meeting, Minneapolis, MN.
N. K. Keller, R. O. Fox, and T. J. Heindel, “Quantifying mixing and segregation in a fluidized bed with a particle segregation number,” AIChE Annual Meeting, Minneapolis, MN.
K. Nilsen, M. G. Olsen, R. O. Fox, and J. C. Hill, “Vortex characteristics in a turbulent incompressible wake flow,” AIChE Annual Meeting, Minneapolis, MN.
B. Kong, M. G. Olsen, R. O. Fox, and J. C. Hill, “A comparison study of turbulence statistics in the mixing regions of a confined jet and wake,” AIChE Annual Meeting, Minneapolis, MN.
**Institutional Service**

**University**
Member, ITS Advisory Committee  
Member, Research Computing Council

**College**
Member, International Programs Advisory Council

**Department**
Chair, Honors and Awards Committee  
Member, Graduate Committee

**Professional Service**

**Editorial Boards**
*AIChE Journal*, Board of Consulting Editors  
*Industrial & Engineering Chemistry Research*, Editorial Advisory Board  
*International Journal of Multiphase Flow*, Editorial Advisory Board  
*Annual Review of Fluid Mechanics*, Editorial Committee

**Offices Held**
Petroleum Research Fund Advisory Board  
Methusalem Advisory Board for M2dcR2, Ghent University, Belgium  
Governing Board for International Conference on Multiphase Flows

**Other**
Session Chair, ICNC 13, Corfu, Greece

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**Charles E. Glatz**

University Professor  
B.S., Chemical Engineering, University of Notre Dame, 1971  
Ph.D., Chemical Engineering, University of Wisconsin - Madison, 1975  
2162B Sweeney Hall  
4-8472  
cglatz@iastate.edu

**Research Interests**
Biochemical separations; protein purification from plant and microbial hosts; membrane processing; protein extraction; fermentation

**Teaching**

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<th>Semester</th>
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<td>Biological Engineering Laboratory</td>
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<td>PLP 565</td>
<td>Responsible Conduct of Research</td>
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<td>F 2011</td>
<td>ChE 562</td>
<td>Bioseparations</td>
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<td>F 2011</td>
<td>PLP/ChE 565</td>
<td>Responsible Conduct of Research</td>
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**Advising**

**Undergraduate Students** - Advised 25 students. Mentored 2 undergraduate research students.  
**Graduate Students** - Supervised 1 Ph.D. student.

**Research and Scholarship**

**Publications**
Continuing Projects

Contributed Presentations

Institutional Service
University
ADVANCE Professor (University Role S11; CBE role continuing)
Provost’s Faculty Review Board
McGee Research Award Review Committee
Faculty Mentor for Buddhi Lamsal, FSHN Department
Destination Iowa State presenter
Iowa Science Fair Judge
College
Budget Task Force
Curriculum Committee (S11)
Agreed to chair Biological Engineering Minor Program (activity to begin S12)
Department
Member, Curriculum Committee (Chair S11)
Chair, Search Committee (F11)
Advising Coordinator
Chair, Search Committee for Academic Advisor
UCL Exchange Coordinator
Faculty mentor for Ian Schneider
ADVANCE Task Force on Adviser Training (primary author of handbook sent out 1/12)

Professional Service
Editorial Boards
Separation Science and Technology
Offices Held
Member, Recovery of Biological Products Conference Board

Kurt R. Hebert
Professor
B.S., Chemical Engineering, Princeton University, 1978
M.S., Chemical Engineering, University of Illinois, 1981
Ph.D., Chemical Engineering, University of Illinois, 1985
2037 Sweeney Hall
4-6763
krhebert@iastate.edu

Research Interests
Corrosion; electrochemistry

Teaching
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Advising

Undergraduate Students - Advised 27 students. Mentored 1 undergraduate research student.

Graduate Students - Supervised 1 M.S. and 2 Ph.D. students.

Degree Awarded - Newira Widharta, M.S.

Research and Scholarship

Publications


Continuing Projects


Invited Presentations


“Morphological Instability Leading to Formation of Porous Anodic Oxide Films,” Materials Department, University of Manchester, Manchester, UK, 7/1/2011.


Contributed Presentations


Institutional Service

College

Member, Promotion and Tenure Committee

Member, Strategic and Operational Planning Committee

Department

Chair, Promotion and Tenure Committee

Chair, Faculty Search Committee

Advance Task Force on Evaluation and Workload Transparency

James C. Hill

University Professor

B.S., Chemical Engineering, Stanford University, 1962

Ph.D., Chemical Engineering, University of Washington, 1968

3155 Sweeney Hall

4-4959

jchill@iastate.edu

Research Interests

Fluid mechanics, turbulence, transport phenomena, reacting flows, computational fluid dynamics

Teaching

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Advising
Undergraduate Students - Advised 30 students. Mentored 3 undergraduate research students.

Research and Scholarship

Publications


Continuing Projects

Invited Presentations


Contributed Presentations


Institutional Service

University
Department Representative, ISU Faculty Senate (various councils/committees)

College
Member, Engineering Caucus of Faculty Senate
Member, Professional Development Committee
Chair, Honors & Awards Committee
Adviser, Tau Beta Pi (Iowa Alpha Chapter) and to solar car team
Member, Wind Energy Science & Engineering ad-hoc Faculty Search Committee
Member, Wind Energy Science & Engineering Minor ad-hoc Committee
Member, Energy Systems Engineering Minor ad-hoc Committee

Department
Chair, Post-Tenure Review Committee
Chair, Planning & Governance Committee
Department representative to ISU Faculty Senate

Andrew C. Hillier
Professor and Associate Chair
B.S., Chemical Engineering, University of Nebraska, 1990
Ph.D., Chemical Engineering, University of Minnesota, 1995
3133 Sweeney Hall
4-3678
hillier@iastate.edu

Research Interests
Solid-liquid interface in terms of interfacial engineering, materials synthesis and characterization, electrochemistry and combinatorial science.
Advising
Undergraduate Students - Advised 27 undergraduate students. Mentored 2 undergraduate research students.
Graduate Students - Advised 3 graduate students and 1 postdoc.

Research and Scholarship
Publications

Proposals Submitted

Continuing Projects

Invited Presentation
A. C. Hillier, “Surface Plasmon Resonance Sensing at Surfaces with Nanostructured Topology,” Department of Chemical and Biological Engineering, University of Iowa, Iowa City, IA, 4/2011.

Contributed Presentation

Citations for 2011
Total publications: 52
Total citations: 1,257
Citations per item: 24.17
h-index: 21
Citations for 2011: 72
Citations for 2010: 101
Citations for 2009: 106

Institutional Service
University
Member, Dreyfus Teacher-Scholar Nominee Selection Committee
College
Member, Student Learning Task Force (ABET Committee)
Department
Chair, Curriculum Committee
Laura R. Jarboe
Assistant Professor
B.S., Chemical Engineering w/ Environmental Engineering Certificate, University of Kentucky, 2000
Ph.D., Chemical & Biomolecular Engineering, University of California, Los Angeles, 2006
3051 Sweeney/4134 BRL
4-2319
ljarboe@iastate.edu

Research Interests
Bacterial antibiotic resistance; nitric oxide response elements in E. coli; biobased production of commodity products

Teaching
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<td>ChE 381</td>
<td>Chemical Engineering Thermodynamics</td>
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<tr>
<td>F 2011</td>
<td>ChE 381</td>
<td>Chemical Engineering Thermodynamics</td>
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Advising
Undergraduate Students - Advised 15 students. Mentored 10 undergraduate research students.
Graduate Students - Supervised 2 Ph.D. students.

Research and Scholarship
Publications

Proposals Submitted
L. Jarboe*, L. Royce, S. Park (Pusan National University, South Korea), “Improving 3-hydroxypropionic acid Tolerance for Effective
Fermentative Production,” ACS GREET, Submitted 4/8/2011, $10,700. (not funded)
L. Jarboe*, M. Soupir, C. Logue, “The role of virulence and resistance in the attachment of agricultural E. coli to environmental particles,” ISU McGee-Wagner, Submitted 4/15/2011, $10,000. (not funded)
Metabolic Technologies Inc*, L. Jarboe, SBIR Phase I: Metabolic Engineering of Mortitella marina MP-1 for DHA production,” NSF SBIR, Submitted 6/10/2011, $50,000 subaward for IJ. (not funded)
L. Jarboe, “Metabolic Engineering of a Marine Bacteria for Sustainable Neutraceutical Production,” Beckman Young Investigators Program, Submitted 10/2/2011. (not selected)

Proposals Accepted


Continuing Projects
CBiRC: Carboxylic Acid Production/Tolerance in E. coli and Yeast (Liam Royce, Ping Liu)
Bio-oil: Fermentation/Tolerance of Pyrolysis-derived Sugars (Tao Jin)
DHA: Metabolic Engineering of Marine Bacterium M. Marina for DHA Production (Kumar Katharapu)

Invited Presentations
“Biocatalyst Engineering for Inhibitor Tolerance,” SYMBIOSIS 4.0 Biotechnology Congress, Tecnologico de Monterrey, Monterrey, Mexico, 4/1/2011.
“Engineering Inhibitor-Tolerant Bacterial Biocatalysts,” University of Iowa, Department of Chemical and Biochemical Engineering, 11/3/2011.

Contributed Presentations
Ping Liu*, L. Jarboe, “Antibiotic Resistance in Agricultural E. coli Isolates is Associated with Attachment to Quartz,” American Society for Microbiology Regional Meeting, Des Moines, IA, 10/7/2011.

Institutional Service
University
Bioeconomy Institute Advisory Council, Spring 2011, Fall 2011
Committee member for Navjot Singh (Ph.D., BBMB), Ryan Sturms (Ph.D., BBMB), Huilin Zhu (Ph.D., BBMB)
Member, George Washington Carver Prize for Outstanding Student Achievement in Biorenewables Selection Committee, April 2011 REU Women’s Roundtable Luncheon, 8/1/2011

College
College of Engineering representative on Plant Sciences Institute Council, Fall 2011
Attended Society of Women Engineers “Sleepover Banquet,” 1/22/2011
ENGR 104 Faculty Roundtable Luncheon, 11/11/2011
Hosted SPEED researcher, Summer 2011
Committee member for Amy Cervantes (M.S., ABE) and Xiao Liang (M.S., ABE)

Department
Faculty Adviser, Omega Chi Epsilon, Spring 2011
Member, Curriculum Committee, Spring 2011, Fall 2011
Member, Faculty Search Committee, Spring 2011, Fall 2011
Attended Spring 2011 undergraduate graduation reception
Qualifying Exam committee Shannon Haughney, Fall 2011
Committee member for Ryan Swanson, David Cantu, Ting Wei Tee
Hosted BioMAP REU researcher, Summer 2011
Hosted CBiRC REU researcher, Summer 2011
ADVANCE Transparency Committee member, Fall 2011

Professional Service
Chaired Conferences and Symposia
SIM Annual Meeting July 2011, New Orleans, LA, Chair of Student Oral Session, Metabolic Engineering poster session judge, Chair of “Strategies of Overcome Biocatalyst Inhibition” session
AIChE Annual Meeting – co-chair of “Biobased Fuels and Chemicals” session

Other
U.S. Department of Energy EPSCOR external reviewer, 7/2011
Monica H. Lamm
Associate Professor and Associate Chair for Graduate Studies
B.S., Chemical Engineering, Syracuse University, 1993
M.S., Chemical Engineering, North Carolina State University, 1998
Ph.D., Chemical Engineering, North Carolina State University, 2000
1037 Sweeney Hall
4-6533
mhlamm@iastate.edu

Research Interests
Molecular and mesoscale simulation to determine molecular structure and thermodynamic properties in advanced materials.

Teaching

<table>
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<th>Semester</th>
<th>Course No.</th>
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<td>ChE 583</td>
<td>Advanced Thermodynamics</td>
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<tr>
<td></td>
<td>ChE 642</td>
<td>Principles and Application of Molecular Simulation</td>
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<td></td>
<td>Hon 290</td>
<td>Independent Study</td>
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<td></td>
<td>ChE 490</td>
<td>Independent Study</td>
</tr>
<tr>
<td>F 2011</td>
<td>ChE 583A</td>
<td>Advanced Thermodynamics</td>
</tr>
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<td>ChE 490</td>
<td>Independent Study</td>
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Advising
Undergraduate Students - Advised 25 students. Mentored 5 undergraduate research students.
Graduate Students - Advised 1 Ph.D. student.
Degrees Awarded - Seung Ha Kim, Ph.D.

Research and Scholarship

Publications

Proposals Submitted
BioMaP REU Site, National Science Foundation, $580,515.
“Transduction of conformational changes to mechanical deformation for aptamer based sensors,” National Science Foundation, $477,395.

Proposal Accepted
BioMaP REU Site, National Science Foundation, $420,000.

Continuing Projects
Mark Gordon (PI) with Monica Lamm, Masha Sosonkina and Theresa Windus (co-PIs), “Enabling Petascale Applications in the Chemical Sciences,” National Science Foundation, 10/1/2007 – 9/30/2011, $1,600,000. ($350,000 to M. H. Lamm)
Balaji Narasimhan (PI) with Monica Lamm (co-PI), “REU Site: Biological Materials and Processes (BioMaP),” National Science Foundation, 5/1/2009 – 4/30/2012, $341,728. ($170,864 to M. H. Lamm)
Mark Gordon (PI) with J. Evans, M. H. Lamm, T. Windus (co-PIs), “A Multi-scale Approach to the Simulation of Lignocellulosic


Contributed Presentations


Citations for 2011

h-index: 11
2011 citations: 70
2010 citations: 55
2009 citations: 43

Institutional Service

University

AGEP Faculty Council
Learning: Student Personal and Intellectual Development in the Future University Taskgroup
Biological Sciences Focus Group (20 Year Capital Planning)
Faculty Senate Women and Minorities Committee
Professional Development Taskforce for GMAP/GWC/AGEP

Department

Director of Graduate Education and Associate Chair for Graduate Studies
Member, Cyberinfrastructure Committee

Professional Service Activities

Chaired Conference during 2011

Session Chair, AIChE Annual Meeting, Minneapolis, MN, October 2011

Office Held in Regional, National and International Organizations during 2011

Liaison Director, AIChE CoMSEF

Other Information

Working with Dennis Vigil in 2012 to assume chair of the Association for Crystallization Technology’s Larson Workshop.

Stephanie D. Loveland

Senior Lecturer

B.S., Chemical Engineering, Iowa State University, 1998
M.S., Chemical Engineering, Iowa State University, 2002
Ph.D., Chemical Engineering, Iowa State University, 2008

2052 Sweeney Hall
4-3024
prairie@iastate.edu
**Research Interests**
Process control and its applications

**Teaching**

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<td>ChE 421</td>
<td>Process Control</td>
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<td>ChE 325 A/B</td>
<td>Chemical Engineering Lab I</td>
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<td></td>
<td>ChE 426 A/B</td>
<td>Chemical Engineering Lab II</td>
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<tr>
<td>SS 2011</td>
<td>ChE 325</td>
<td>Chemical Engineering Lab I</td>
</tr>
<tr>
<td></td>
<td>ChE 426</td>
<td>Chemical Engineering Lab II</td>
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<td>F 2011</td>
<td>ChE 421</td>
<td>Process Control</td>
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<td>ChE 325 A/B</td>
<td>Chemical Engineering Lab I</td>
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<td>ChE 426 A/B</td>
<td>Chemical Engineering Lab II</td>
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</table>

**Advising**
Undergraduate Students - Advised 4 students. Mentored 3 undergraduate research students.

**Research and Scholarship**

**Contributed Presentations**

**Institutional Service**

**Department**
Member, Safety Committee
Member, Curriculum Committee
Department Safety Officer

**Surya K. Mallapragada**
Professor, Stanley Chair in Interdisciplinary Engineering, Department Chair
B.S., Chemical Engineering, Indian Institute of Technology, 1993
Ph.D., Chemical Engineering, Purdue University, 1996
2114 Sweeney Hall
4-7407
suryakm@iastate.edu

**Research Interests**
Transport in polymers; polymeric systems for controlled drug delivery and gene therapy; tissue engineering; stimuli-sensitive polymers; nanoscale modification of polymer surfaces

**Teaching**

<table>
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<th>Semester</th>
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<th>Course Name</th>
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<td>S 2011</td>
<td>ChE 104</td>
<td>ChE Learning Community, 2 sections</td>
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<td>ChE 391</td>
<td>Foreign Study orientation - Oviedo</td>
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<td>F 2011</td>
<td>Eng 101</td>
<td>Engineering Orientation</td>
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<tr>
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<td>ChE 104</td>
<td>ChE Learning Community, 2 sections</td>
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**Advising**
Undergraduate Students - advised 20 students. Mentored 10 undergraduate research students.
Graduate Students - Supervised 1 M.S. and 5 Ph.D. students.
Degrees Awarded - Emily Davenport, M.S., and Bingqi Zhang, Ph.D.

**Research and Scholarship**

Publications


Proposals Submitted


B. Narasimhan (PI), S. K. Mallapragada (co-PI with four others), “Nanosystems ERC on nano-enabled Sensors for Advanced Food Safety Enhancement (nano-SAFE),” NSF-NERC, 8/2012-8/2016, $18,500,000. (Pending)


Proposals Accepted


Continuing Projects


S. K. Mallapragada (PI) with 4 other co-PIs, “A 21st Century Revitalized Research and Research Training Infrastructure for Chemical and Biological Engineering,” National Science Foundation-Academic Research Infrastructure, 10/2010-9/2013, $1,998,765.


N. Pohl (PI), S. K. Mallapragada (co-PI along with four others), “MRI-R2: Acquisition of a 600-MHz NMR Spectrometer for Chemical, Biochemical, and Materials Science Research,” National Science Foundation-Major Research Instrumentation, 7/2010-7/2011, $556,990.

S. K. Mallapragada (PI) with 7 other co-PIs, “Bioinspired Materials,” U.S. Department of Energy, $850,000 per year.

Invited Presentations

“Self-Assembling Stimuli Sensitive Polymers for Gene Delivery and Biomineralization,” Harrington Symposium, University of Texas, Austin, TX, 2011.

“Rational Design and Synthesis of Polymers for Gene Delivery,” Challenges in Biomaterials Synthesis Session, AIChE Annual
Meeting, Minneapolis, MN, 2011.
“Micropatterned Polymers for Peripheral Nerve Regeneration and Control of Stem Cell Differentiation,” IIT Chicago, IL, 2011.

Contributed Presentations

Institutional Service
University
NSF-AGEP Graduate Fellowship Selection Committee
Serving on about 30 program of study committees
FWP Leader, Ames Laboratory
Member, OIPTT Director Search Committee

College
Chair, Search Committee for Director of Engineering College Relations

Department
Honors Adviser
Chair, Honors and Awards Committee (Spring 2011)

Professional Service
Chaired Conferences and Symposia
Session Chair, Biomaterials and Bioinspired Materials, 39th North America Thermal Analysis Society Annual Meeting, Des Moines, IA, 2011.

Editorial Boards
Journal of Biomedical Nanotechnology

Offices Held in Regional, National and International Organizations
Member, Executive Board of National Program Committee, American Institute of Chemical Engineers, 2010-13
Chair, Task Force on Meeting Program Quality

Other
Reviewer for over 15 journals

Balaji Narasimhan
Associate Dean for Research & Economic Development
Vlasta Klima Balloun Professor of Engineering
B.S., Chemical Engineering, Indian Institute of Technology, Bombay, 1992
Ph.D., Chemical Engineering, Purdue University, 1996
104 Marston/2035 Sweeney
4-8019
nbalaji@iastate.edu

Research Interests
Nanoscale manipulation of polymer surfaces/interfaces; engineered biomaterials; controlled drug/protein delivery; combinatorial
design of materials

### Teaching

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<th>Semester</th>
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<td>ChE 357</td>
<td>Heat and Mass Transfer</td>
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<td>ChE 490</td>
<td>Independent Research</td>
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<td>ChE 699</td>
<td>Graduate Research</td>
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<td>ChE 699</td>
<td>Graduate Research</td>
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<tr>
<td>F 2011</td>
<td>ChE 699</td>
<td>Graduate Research</td>
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### Advising

**Undergraduate Students** - Mentored 4 undergraduate research students.

**Graduate Students** - Supervised 1 M.S. and 9 Ph.D. students.

**Degrees Awarded** - Ana Chavez-Santoscoy, M.S., Latrisha Petersen, Ph.D., and Brenda Carrillo-Conde, Ph.D.

### Research and Scholarship

**Publications**


### Proposals Submitted

B. Narasimhan (PI) with R. A. LeSar, S. K. Mallapragada, and J. M. Reecy (Co-PIs), "Biomolecular and Materials Research Center (BioMaRC)," National Institute of Standards and Technology-CGP, 2011-2016, $10,120,000.

Nanoparticle-based Single Dose Nanoadjuvant Platform Vaccines Against Biowarfare Agents, Center for Drug Delivery and Nanomedicine Retreat, Nebraska Medical Center, Nebraska City, NE, 11/17/2011.

Proposals Accepted

Continuing Projects


S. K. Mallapragada (PI) with B. Narasimhan (Co-PI with 3 others), “A 21st Century Revitalized Research and Research Training Infrastructure for Chemical and Biological Engineering,” 2010-2013, $1,767,738.


B. Narasimhan (PI) and M. H. Lamm (Co-PI), “REU Site: Biological Materials and Processes (BioMaP),” National Science Foundation, 2009-2012, $420,000.


Invited Presentations

“Pathogen-Mimicking” Nanoparticles for Prevention and Treatment of Respiratory Infectious Diseases,” Mystic Pharmaceuticals, Inc., Austin, TX, 11/2/2011.

“Pathogen-Mimicking” Nanoparticles for Prevention and Treatment of Respiratory Infectious Diseases,” Area 15 Plenary Lecture, Annual AIChE Meeting, Minneapolis, MN, 10/18/2011.

Single Dose Nanoadjuvant Platform Vaccines Against Biowarfare Agents,” Center for Drug Delivery and Nanomedicine Retreat, University of Nebraska Medical Center, Nebraska City, NE, 6/1/2011.


Continuing Projects


Contributed Presentations


**Institutional Service**

**University**

ISU representative on Iowa Energy Center Advisory Council
ISU Research and Economic Development Council
Advisory Council, Strengthening the Professoriate (SP@ISU)
Review Committee for InTrans, 2011

**College**

Associate Dean for Research & Economic Development
Director, Engineering Research Institute

**Department**

Director, Biological Materials and Processes (BioMaP) REU Program

**Professional Service**

**Chaired Conferences and Symposia**


**Editorial Boards served on**

Peer Review Board Member, *Journal of Visualized Experiments* (JoVE)

**Offices Held in Regional, National and International Organizations**

Awards Subcommittee Member, ASEE Engineering Research Council

---

**Jennifer M. O’Donnell**

Assistant Professor

B.S., Chemical Engineering, Bucknell University, 2001
Ph.D., Chemical Engineering, University of Delaware, 2007

2033 Sweeney Hall
4-1891
jodonnll@iastate.edu

**Research Interests**

Mechanism and kinetics of controlled polymerizations in heterogeneous media, relationship between molecular architecture, phase behavior and microstructure of polymeric amphiphiles in solution.

**Teaching**

<table>
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<tr>
<th>Semester</th>
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<td>S 2011</td>
<td>ChE 210/210 XE</td>
<td>Material and Energy Balances</td>
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<td>SS 2011</td>
<td>ChE 210 XE</td>
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<td>F 2011</td>
<td>ChE 210</td>
<td>Material and Energy Balances</td>
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**Advising**

**Undergraduate Students** - Advised 15 students. Mentored 6 undergraduate research students.

**Graduate Students** - Advised 4 Ph.D. students
Research and Scholarship

Proposals Submitted
“CAREER: Reversible Addition-Fragmentation Chain Transfer Microemulsion Polymerization with Surface-Active Chain Transfer Agents,” National Science Foundation Career, $407,078. (declined)
“RAFT Microemulsion Polymerization with Surface-Active Chain Transfer Agents,” National Science Foundation Macromolecular, Supramolecular and Nanochemistry, $169,229. (pending)
“Effect of Molecular Architecture on Terpolymer Self-Assembly,” U. S. Office of Naval Research Young Investigator, $326,281. (pending)

Continuing Projects
Self-Assembly of Low Molecular Weight, Amphiphilic Block Copolymers
Polymerization of Emulsified Microemulsions and Dispersed Liquid Crystals
RAFT Microemulsion Polymerization with Surface-Active Chain Transfer Agents

Contributed Presentations (*indicates presenter)

Citations for 2011
“Microstructure, kinetics, and transport in oil-in-water microemulsion polymerizations,” Macromolecular Rapid Communications, 2007. (1 citation)

Institutional Service
University
New Student Orientation, Faculty Panel (6/2011)
College
Society of Women Engineers, Faculty Advis3r (12/2009-present)
Department
Member, ADVANCE Committee (1/2010 – 5/2011)
Member, Undergraduate Recruiting and Retention Committee (9/2008-present)
Scholar’s Day - presentation for accepted students and their parents (2/2011)
ENGR 101, Engineering Orientation - presentations for first year engineering students (2/2011 and 10/2011)

Professional Service
Chaired Conferences and Symposia during 2011
Co-Chair, In Honor of T. W. Fraser Russell: 2010 W. K. Lewis Awardee, Education Division, American Institute of Chemical Engineers Annual Meeting (10/2011)
Chair, Polymer Reaction Engineering Kinetics & Catalysis I, Materials Engineering and Sciences Division, American Institute of Chemical Engineers Annual Meeting (10/2011)
Other
Judge, Ames High School Science Fair (3/2011)

Other Information
Accomplishments
Invited to lecture at the SAXS Master Class offered by the University of Minnesota in May 2012
Selected by the university to submit an NSF MRI proposal (submitted to NSF on 1/26/2012)

Peter J. Reilly
Anson Marston Distinguished Professor
B.A., Chemistry, Princeton University, 1960
Ph.D., Chemical Engineering, University of Pennsylvania, 1964
2031 Sweeney
4-5968
reilly@iastate.edu

Research Interests
Biochemical engineering; enzyme technology; carbohydrate chromatography; computational biology; utilization of agricultural residues

Teaching

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<td>Biochemical Engineering</td>
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<td>Intro. to Bioengineering I (1/2)</td>
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<tr>
<td>F 2011</td>
<td>ChE 382</td>
<td>Chemical Reaction Engineering</td>
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Advising
Undergraduate Students - Advised 30 students. Mentored 6 undergraduate research students.
Graduate Students - Supervised 2 Ph.D. students.

Research and Scholarship
Publications

Continuing Projects
Construction of database of primary and tertiary structures of the eight enzyme groups of the fatty acid synthesis cycle, and phylogenetic studies evolving from this (National Science Foundation Engineering Center for Biorenewable Chemicals).

Invited Presentations


**Presenter
**Poster

Institutional Service
University
Faculty Senate Honorary Degrees Committee, 2000–present, Chair, 2005–present
Library Advisory Committee, 2007–present, Chair, 2007–present

College
Bioengineering Minor, College of Engineering, Chair of Supervisory Committee, 2008–present

Department
Member, Honors and Awards Committee, 2005–present
Member, Curriculum Committee, 2009–present
Chair, CBE/MSE Faculty Search Committee, 2010–2011

Professional Service
Editorial Boards served on
Editorial Board, Biotechnology Letters (2011–present)

Derrick K. Rollins
Professor
B.S., Chemical Engineering, University of Kansas, 1979
M.S., Statistics, The Ohio State University, 1989
M.S., Chemical Engineering, The Ohio State University, 1987
Ph.D., Chemical Engineering, The Ohio State University, 1990
1033 Sweeney Hall
4-5516
drollins@iastate.edu

Research Interests
Predictive modeling and control of chemical processes; data reconciliation/gross error detection; powder mixtures

Teaching
Semester | Course No. | Course Name
------- | --------- | --------
S 2011   | Stat 305  | Engineering Statistics
SS 2011  | Stat 401  | Statistics for Research Workers
F 2011   | Stat 105  | Intro Stat for Engineers

Advising
Undergraduate Students - Advised 20 students. Mentored 27 undergraduate research students.
Graduate Students - Supervised 1 M.S. and 1 Ph.D. student.
Degree Awarded - Kaylee Kotz, M.S.

Research and Scholarship
Publications
Proposals Submitted
The Office of the Executive Vice President and Provost Women’s and Diversity Grants to support SPEED Research Track Student ($5,000), 2011.

Proposals Accepted
The Office of the Executive Vice President and Provost Women’s and Diversity Grants to support SPEED Research Track Student ($4,000), 2011.

Continuing Projects
“Multivariable Closed-loop Technologies for Physical Active Young Adults With Type 1 Diabetes,” Subcontract of National Institutes of Health grant with Illinois Institute of Technology, $50,000.
Juvenile Diabetes Research Foundation (JDRF) Innovation Award, $110,000, 2010.

Invited Presentations
Panel Member, “Session on How to Select a Graduate Program in the Math Sciences,” Field of Dreams Conference, Tempe, AZ, 10/14-10/16/2011.

Contributed Presentations
D. K. Rollins (speaker), K. Kotz, A. Cinar, E. Littlejohn and L. Quinn, “Subject-Specific Multiple Input Block-Oriented Glucose Modeling of Several Type 1 Diabetic Subjects,” Session 764e, AIChE Annual Meeting, Minneapolis, MN, 10/2011.

Institutional Service
University
Chair, ISU MLK Committee; Member of the ISU President’s Cabinet
Member, Carver Academy Steering Committee
Faculty Adviser, ISU CONNECT Tutoring Student Organization
ISU Director of the Louis-Stokes Alliance for Minority Participation (LS-AMP)

College
Member, Diversity Committee
Professor-in-Charge, Community-Based Recruiting and Transition (Director of SPEED Academic and Research Tracks and Community-Based Recruiting Efforts)

Department
Chair, Scholarship Committee (on professional leave during selection)
Laboratory Coordinator, Process Control
Faculty Adviser, National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)
Chair, Undergraduate Recruitment and Retention Committee
Taught a three-hour statistics workshop to summer REU students
Active recruitment and mentoring of underrepresented graduate students in Statistics
Diversity Directory, CBiRC Leadership Team

Professional Service
Chaired Conferences and Symposia
Co-Chair, “Lessons Learned From and Economic Impacts of the Fukushima, Japan Disaster,” MAC Session, AIChE Annual Meeting, Minneapolis, MN, 2011.

Offices Held in Regional, National and International Organizations
Ian C. Schneider  
Assistant Professor  
B.S., Chemical Engineering, Iowa State University, 2000  
M.S., Chemical Engineering, North Carolina State University, 2002  
Ph.D., Chemical Engineering, North Carolina State University, 2005  
3053 Sweeney Hall  
4-0450  
ians@iastate.edu  

Research Interests  
Cell and biomolecular engineering; quantitative light microscopy; cell adhesion, migration and communication; mechanical and biophysical aspects of cell biology

Teaching  

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<td>Biomedical Applications of Chemical Engineering</td>
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<td>BMS 575</td>
<td>Cell Biology (2 weeks)</td>
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Advising  

Undergraduate Students - Advised 6 students. Mentored 12 undergraduate research students.  
Graduate Students - Supervised 3 Ph.D. students.

Research and Scholarship  

Proposals Submitted  
“Engineering Controllable Tumor Microenvironment Mimics,” Damon Runyon Cancer Research Foundation, Damon Runyon-Rachleff Innovation Award, 1/1/2012-12/31/2015, $450,000.  
“Multifunctional Nanocrystals for Sensing Protease Activity During Metastasis,” National Cancer Institute, National Institutes of Health, 4/1/2012-3/31/2017, $1,646,496.  
“Nanoparticle Coincidence Detectors for Cancer Diagnostics,” Arnold and Mabel Beckman Foundation, Beckman Young Investigators Program, 9/1/2012-8/31/2016, $750,000.  

Proposals Accepted  

Continuing Projects  
Deconstructing Feedback Loops Linking Adhesion to Dynamic Morphological Changes during Cell Migration  
Controlling the Spatial Presentation of Collagen and Epidermal Growth Factor to Direct Cell Migration  
Parsing Intracellular Control of Cancer Cell-Macrophage Communication through Paracrine Relays  
Developing Quantum Dot Biosensors for Surface-Bound Protease Activity

Contributed Presentations  

Talks  
Y. Zhang, A. Haage, E. Whitley, I. Schneider and A. Clapp, “Tailored Surface Charge and Hydrophilicity in Colloidal Quantum Dot
Y. Hou and I. Schneider, “Protrusion Dynamics and Focal Adhesion Maturation Drive Migration Variability under EGF Stimulation,” AIChe Annual Fall Meeting, Minneapolis, MN, 10/2011.

Posters
Y. Hou and I. Schneider, “Protrusion and Focal Adhesion Maturation Drive Migration Variability under EGF Stimulation,” Biomedical Engineering Society Annual Fall Meeting, Hartford, CT, 2011.

Institutional Service
College
Member, Engineering College Curriculum Committee

Department
Member, Curriculum Committee
Member, Biomaterials Faculty Search Committee
Member, MCDB Interdepartmental Graduate Program Curriculum Committee

Professional Service
Other
Journal reviewer for Biophysical Journal, Tissue Engineering, Cell and Molecular Bioengineering
Panel reviewer for National Science Foundation Engineering

Brent H. Shanks
Mike and Jean Steffenson Professor
Director, NSF Engineering Research Center for Biorenewable Chemicals (CBiRC)
B.S., Chemical Engineering, Iowa State University, 1983
M.S., Chemical Engineering, California Institute of Technology, 1985
Ph.D., Chemical Engineering, California Institute of Technology, 1988
1140L BRL
4-1895
bshanks@iastate.edu

Research Interests
Heterogeneous catalysis, Catalytic conversion of biorenewable feedstocks, Mesoporous metal oxides, and Novel coupling of reactor/catalyst combinations

Teaching
Semester Course No. Course Name
S 2011 ChE 358 Separations

Advising
Undergraduate Students - Advised ~25 students. Mentored 11 undergraduate research students.
Graduate Students - Supervised 9 Ph.D. students.
Degree Awarded - Pedro Ortiz-Toral, Ph.D.

Research and Scholarship
Publications
Z. Li and B. H. Shanks, “Role of Cr and V on the Stability of Potassium-Promoted Iron Oxides used as Catalysts in Ethylbenzene


**Proposals Submitted**

B. H. Shanks (PI) with B. Nikolau (co-PI), "ERC: Center for Biorenewable Chemicals - renewal," National Science Foundation, 9/2013-8/2016, $12,000,000.


B. Nikolau (PI) with B. H. Shanks (co-PI), "Emerging chemical principles of bio-inspired catalysts for Biorenewables - preproposal," National Science Foundation-Centers for Chemical Innovation, 9/1/12-8/3/15, $1,750,000.


**Proposals Accepted**


B. H. Shanks (PI) with B. Nikolau (co-PI), "ERC: Center for Biorenewable Chemicals - renewal," National Science Foundation, 9/2013-8/2016, $12,000,000.


**Invited Presentations**

“Biorenewable Chemicals: Creating a Generalized Production Paradigm,” University of Twente, Enschede, Netherlands, 6/22/2011.

**Contributed Presentations**

**Institutional Service**

**University**
Director, NSF Engineering Research Center for Biorenewable Chemicals (CBrIC)

**College**
Member, MARL Advisory Committee

**Department**
Member, Faculty Search Committee

**Professional Service**

**Chaired Conferences and Symposia**
Session Chair, Complex Carbohydrates to Useful Chemicals, 22nd North American Catalysis Society Meeting, Detroit, MI, 6/2011.
Session Chair, Biomass Conversion, 22nd North American Catalysis Society Meeting, Detroit, MI, 6/2011.
Session Co-Chair, Catalytic Biomass Conversion to Chemicals, Annual Meeting, American Institute of Chemical Engineers, Minneapolis, MN, 10/2011.
Session Co-Chair, Chemicals and Oils from Coal and Biomass, 6th Sino-US Joint Conference of Chemical Engineering, Beijing, China, 11/2011.

**Editorial Boards served on**
Editorial Boards: *Applied Catalysis A: General, ChemSusChem*

**Other**
Advisory Board, Wi(PR)EM, University of Puerto Rico - Mayaguez
Scientific Board, 1st International Congress on Catalysis for Biorefineries (CatBior), Malaga, Spain, 10/2-10/5/2011
Organizing Committee, National Panel on the Carbon-Negative Economy, Chicago, IL, 10/6-10/7/2011
Organizing Committee, Council for Chemical Research Annual Meeting
Proposal Reviewer – National Science Foundation, Department of Energy, Energy Biosciences Institute

**Jackie V. Shanks**
Manley R. Hoppe Professor
B.S., Chemical Engineering, Iowa State University, 1983
Ph.D., Chemical Engineering, California Institute of Technology, 1989
3031 Sweeney/4136 BRL
Research Interests
Biochemical engineering, plant metabolic engineering, metabolic engineering for biorenewable chemicals and fuels, NMR-based flux analysis

Teaching

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<td>ChE 406/ 506</td>
<td>Environmental Chemodynamics</td>
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Advising

Undergraduate Students - Advised 20 students. Mentored 4 undergraduate research students.

Graduate Students - Supervised 2 M.S. and 4 Ph.D. students.

Degree Awarded - Yanfen Fu, M.S.

Research and Scholarship

Publications


Proposals Submitted
J. V. Shanks (PI) with L. Jarboe (co-PI) and 4 others, “Multiscale Engineering for Production of Hydrocarbons,” U.S. Department of Energy, 4/1/2012 – 3/31/2017, $2,494,289 (Direct Costs).

J. V. Shanks (PI) with B. H. Shanks (co-P.I.) and 3 others, “PIRE: From Biology to Chemistry: Sustainable Chemicals, Materials and Fuels via Catalytic Conversion of Biomass Feedstocks,” National Science Foundation Partnerships for International Research and Education program, 7/1/2012 – 6/30/2017, preproposal from Iowa State University.


C. Nikolau (PI) with J. V. Shanks (co-PI) and others, “BGxE2: Emergent Principles of Plant Metabolism,” National Science Foundation Science and Technology Centers (Integrative Partnerships Program) pre-proposal, $25,000,000.

D. Nielsen (PI), with L. Jarboe (co-PI), J. V. Shanks (collaborator) and D. R. Raman (collaborator), “Collaborative Research: Production of Cinnamic Acid and Styrene from Glucose using Product Tolerant Microbial Platforms,” National Science Foundation Biotechnology, Biochemical and Biomass Engineering, Submitted 9/15/2011, $300,000 over 3 years.

B. H. Shanks (PI) with J. V. Shanks (Thrust 2 Leader), “ERC: Center for Biorenewable Chemicals,” National Science Foundation, 8/1/2014–7/31/2018, $12,000,000.

Proposals Accepted
B. H. Shanks (PI) with J. V. Shanks (Thrust 2 Leader), “ERC: Center for Biorenewable Chemicals,” National Science Foundation, 8/1/2014–7/31/2018, $12,000,000 (Funding announcement on hold due to continuing resolution).

J. V. Shanks (PI) with University of Minnesota’s S. Gibson (Co-PI), “Collaborative Research: Metabolic Engineering of Terpenoid Indole Alkaloid Pathways Using Transcriptional Regulators in C. roseus Hairy Roots,” National Science Foundation, (Three years), $236,302 (ISU portion - Funding announcement on hold due to continuing resolution).

Continuing Projects


J. V. Shanks (PI) with B. Nikolau, T. Bobikfrom, California State University-Chico’s G. Wolfe, and University of Puerto Rico’s G.

S. K. Mallapragada (PI) with J. V. Shanks (co-PI) and 3 others, “A 21st Century Revitalized Research and Research Training Infrastructure for Chemical and Biological Engineering,” National Science Foundation, 1/1/2010 – 12/31/2013, $1,998,765.


Invited Presentations


“Metabolic Flux Cartography – On the Road to Sustainable Food, Feed, Fuels and Chemicals,” Department of Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH, 6/2011.


Contributed Presentations


Institutional Service

University

Engineering Representative, Radiation Safety Committee, 2004-2011
Engineering Representative, Biotechnology Council, 2008-2011

Department

Member, Faculty Search Committee, 2011-2012
Faculty mentor, Dr. Laura Jarboe, 2008-present

Professional Service

Editorial Boards served

Editorial Advisory Board, Biotechnology Progress, 2000-present
Editorial Advisory Board, Current Opinion in Biotechnology, 2010-present

Other

Member, U.S. Department of Energy Office of Biological and Environmental Research Advisory Committee (BERAC), 2011-present
Reviewer of manuscripts, NSF panel in May, proposals, etc.

Cory K. Stiehl

Lecturer

B.S., Chemical Engineering, University of Rochester, 1985
Ph.D., Chemical Engineering, University of Massachusetts, 1990
3063 Sweeney Hall
4-5825
cstiehl@iastate.edu
### Teaching

<table>
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<td>ChE 430</td>
<td>Process &amp; Plant Design</td>
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</table>

### R. Dennis Vigil

Associate Professor

B.S., Chemical Engineering, University of New Mexico, 1985
M.S., Chemical Engineering, University of Michigan, 1986
Ph.D., Chemical Engineering, University of Michigan, 1990

3037 Sweeney Hall
4-6438
vigil@iastate.edu

### Research Interests

Multiphase flow; reaction engineering; adsorption; particulate processes

### Research and Scholarship

#### Publications


#### Proposals Submitted


R. D. Vigil (PI) with J. Downing, et al. (co-PIs), “Farming Iowa’s lakes to produce biofuels and improve water quality,” Iowa Energy Center, $415,117.


R. D. Vigil (PI) with M. Spalding, et al. (co-PIs), “EFRI-PSBR Preliminary Proposal - Microalgal photosynthetic biorefineries to produce high-value reduced carbon products,” National Science Foundation, $2,001,231.

R. D. Vigil (PI), “Integrated, efficient, and scalable processes for production of fuels and chemicals from algal feedstocks,” submitted to VPR, Iowa State University (National Science Foundation Sustainable Energy Processes RFP), $2,000,000.

R. D. Vigil (PI) with C. Filstrup (co-research mentor), “Lakes as large scale algae bioreactors: Eutrophication remediation could be a source of biofuels,” National Science Foundation Engineering and Education for Sustainability Fellowship, $216,000.

#### Proposals Accepted

R. D. Vigil (PI), “Integrated, efficient, and scalable processes for production of fuels and chemicals from algal feedstocks,” submitted to VPR, Iowa State University (National Science Foundation Sustainable Energy Processes RFP), $2,000,000.

#### Continuing Projects

Invited Presentations

Institutional Service
University
Member, Provost’s Committee on Faculty Misconduct

College
Member, Engineering Fee Task Force Committee

Department
Associate Chair, Graduate Committee
Chair, Cyberinfrastructure Committee
Member, ADVANCE Committee

Professional Service
Office Held in Regional, National and International Organizations
Chairman, Association for Crystallization Technology Steering Committee

Other

Thomas D. Wheelock
University Professor Emeritus
B.S., ChE, Iowa State University, 1949
Ph.D., ChE, Iowa State University, 1958
3157 Sweeney Hall
4-5226
wheel@iastate.edu

Research Interests
Specific problems of environmental pollution have been addressed through the development of improved methods for removing sulfur and ash-forming mineral matter from coal and by the development of a method for regenerating calcium-based sorbents that are used to remove sulfur compounds from the products of coal gasification or coal combustion.

Research and Scholarship
Publications

Continuing Projects
The development and application of a combined catalyst and sorbent for use in reforming hydrocarbons is continuing with the assistance of Meng Kong, a visiting scholar supported by the Chinese government

Institutional Service
Department
Member, Honors and Awards Committee

Professional Service
Editorial Boards served on
International Journal of Coal Preparation and Utilization

Other
Reviewed several manuscripts submitted for publication in the International Journal of Coal Preparation and Utilization and in ACS journals.
### ADVISORS AND COMMITTEES (Fall 2011)

<table>
<thead>
<tr>
<th>PROJECT/ACTIVITY</th>
<th>FACULTY MEMBER IN CHARGE AND STAFF LIAISON</th>
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<tr>
<td>Associate Chair &amp; Teaching Coordinator</td>
<td>A. Hillier</td>
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<tr>
<td>AIChE Adviser</td>
<td>A. Clapp (C. Patterson)</td>
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<td>Assessment Coordinator</td>
<td>A. Hillier and S. Loveland (L. Edson)</td>
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<td>CEGSO Adviser</td>
<td>M. Lamm (C. Patterson)</td>
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<td>COOP Program</td>
<td>B. Shanks (B. Kutz)</td>
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<td>Diversity</td>
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<tr>
<td>Foreign Study Program (Oviedo)</td>
<td>S. Mallapragada (J. Danielson)</td>
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<td>Graduate Seminar Coordinator</td>
<td>J. O’Donnell (C. Patterson)</td>
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<tr>
<td>Honors Advisers</td>
<td>E. Cochran, C. Glatz, J. Hill, S. Mallapragada, P. Reilly, B. Shanks, and D. Vigil</td>
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<td>S. Loveland and L. Hanneman (C. Patterson)</td>
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<td>NOBCChE Adviser</td>
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<td>Omega Chi Epsilon Adviser</td>
<td>K. Hebert (C. Patterson)</td>
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<td>Scholarship Coordinator</td>
<td>D. Rollins, S. Mallapragada (B. Kutz) and J. Danielson (finance)</td>
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<td>Teaching Laboratory Coordinator</td>
<td>S. Loveland</td>
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### DEPARTMENT COMMITTEE ASSIGNMENTS

#### ADVANCE
- C. Glatz (Chair)
- J. O’Donnell
- D. Vigil

#### ADVISORY COUNCIL
- Mary Jane Hagnonson (Chair)
- Peter C. Hemken
- James R. Katzer
- Terry S. King
- Robert A. Lane
- S. Mallapragada (ex-officio)
- Gayle A. Roberts
- Leigh H. Thompson
- Dennis J. Vaughn
- J. Danielson (Secretary)

#### CENTENNIAL
- S. Mallapragada (Chair)
- J. Hill
- A. Hillier
- G. Burnet
- T. Wheelock
- A. Laug
- L. Edson (Staff Liaison)
- C. Neary (Staff Liaison)

#### CHAIR STUDENT ADVISORY
- S. Mallapragada (Chair)
- Sara Schaubroeck
- Alma Marquez
- D. Pitman (Staff Liaison)

#### CURRICULUM
- A. Hillier (Chair)
- C. Glatz
- L. Jarboe
- I. Schneider
- S. Loveland
- J. Bergman (Grad)
- C. Brewer (Grad)
- D. Cantu-Cantu (Grad)
- Matt Vander Werff
- B. Kutz (Staff Liaison)
- S. Grundmeier (Staff Liaison)

#### CYBERINFRASTRUCTURE
- D. Vigil (Chair)
- E. Cochran
- M. Lamm
- E. El-Hedok (Grad)
- N. Hernandez (Grad)
- M. Nolan (Grad)
- D. Schlager (Staff Liaison)

#### GRAD PROGRAM
- M. Lamm (Chair)
- D. Vigil (Associate Chair)
- E. Cochran
- R. Fox
- D. Cantu Cantu (Grad)
- D. Flores (Grad)
- J. Petefish (Grad)
- C. Patterson (Staff Liaison)

#### HONORS & AWARDS
- R. Fox (Chair)
- G. Burnet
- S. Mallapragada
- N. Pohl
- P. Reilly
- T. Wheelock
- L. Edson (Staff Liaison)

#### SAFETY
- L. Hanneman (Chair)
- S. Loveland (Co-chair)
- K. Hebert
- J. Anderson (Grad)
- K. Deutsch (Grad)
- K. Ross (Grad)
- C. Patterson (Staff Liaison)

#### SEARCH
- C. Glatz (Biocatalysis Chair)
- K. Hebert (ChemCatalysis Chair)
- A. Hillier
- L. Jarboe
- B. Shanks
- J. Danielson (Staff Liaison)
- L. Edson (Staff Liaison)

#### STRATEGIC PLANNING & GOVERNANCE
- J. Hill (Chair)
- A. Hillier
- P. Reilly
- S. Mallapragada (ex-officio)
- J. Danielson (Staff Liaison)

#### UNDERGRAD RECRUITING & RETENTION
- D. Rollins (Chair)
- J. O’Donnell
- A. Clapp
- L. Royce (Grad)
- R. Swanson (Grad)
- S. Grundmeier (Staff Liaison)
### COURSES TAUGHT (Spring 2011)

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<th>Section ID</th>
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## GRADUATE SEMINAR SERIES (2011 Calendar Year)

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<td>(Microtubule Assembly Dynamics at the Nanoscale)</td>
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<td>April 21</td>
<td>Stephen Martin, Assistant Professor, Department of Chemical Engineering, Virginia Polytechnic Institute and State University</td>
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<td>(Self-Assembled and Nanostructured Materials for Membrane Separations)</td>
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<td>Huimin Zhao, Centennial Endowed Chair Professor of Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign</td>
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<td>(Microbial Synthesis of Drugs and Fuels via Synthetic Biology)</td>
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<td>Thomas Epps, III, Assistant Professor of Chemical Engineering, University of Delaware</td>
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<td>(Using Interfacial Manipulations to Generate Functional Materials from Nanostructured Polymers)</td>
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<td>September 22</td>
<td>Darsh Wasan, Professor of Chemical and Biological Engineering, Illinois Institute of Technology</td>
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<td>September 29</td>
<td>Akin Akinc, Associate Director of Research, Aylarnam Pharmaceuticals</td>
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<td>October 13</td>
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<td>Pablo G. Debenedetti, Professor of Chemical and Biological Engineering, Princeton University</td>
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<td>December 1</td>
<td>Shuichi Takayama, Professor of Biomedical Engineering, University of Michigan</td>
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<td>(Microfluidic Engineering of Cell Micro-environments)</td>
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