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Undergraduate Program

Trends in Undergraduate Enrollment

Trends in B.S. Degrees Granted
Graduates in CHE Options

No. of Students

Academic Year


Nanoscience (2004)
Honors (2000- )
B.S. Degree Recipients
There were 100 Bachelor of Science degrees awarded during the 2003-2004 academic year.

Summer I 2003 Graduates
Matthew Conklin Flanery**
Jae Hoon Jeong
Fatou Gisele Maiga

Summer II 2003 Graduates
Yvonne Theresa Ledford
Raed Rasi Samamra

December 2003 Graduates
Timothy James Armstrong*
Tiffany Kirsten Creech*
Abishek Vinod Dhawan**
David Otto Foster*
Charles Terry Goss, Jr.***
Joshua Daniel McCall***
Alnesha Moses***
Dustin Scott Mountcastle**
Eric Sean Nemetz
John Louis Patteson II*
Karen Jeanette Rackley
Donnie Mack Young***

May 2004 Graduates
Ryan Thomas Adams***
Andrea Gayle Allgood****
Catherine Elaine Anderson
Elizabeth Paige Auten*
Samir Bassam Bachour*
Heather Lee Baker***
Craig Allan Bardsley*
Angel Robin Barnhill
Tracy Allison Beavers*
Shawna Stephenie Berg****
Eric Arthur Blanchone
Paul Douglas Box***
Gregory Lee Brobst***
Christopher Scott Brownfield***
Veronica Nicole Brumbaugh
Amanda Carrie Burris
Jamie Deanne Bushnell***
Clifford Scott Bynum*
Melanie Pei-Heng Chin****
Cameron Lea Cobb*
Amy Elizabeth Cox****
Laura Ashley Creech***
Jonathan Ray Dunn***
Joshua Morgan Edmonds**
Rachel Alyssa Ernest***
David Numan Erel
Baher Selim Eskaf***
Erich Matthew Fabricius***
Bradley Christopher Fetzer***
Christopher Matthew Foess***
Dmitry S. Fomin
Matt Robert Hakos***
Gerald Blakeley Herring****
Thomas Eston Herrnig**
Mary Allison Herrmann
Wesley Alexander Hudson***
Peter Michael Johnstone
Kristen Lane Jones
Stephen Marvin Keel*
Lauren Elizabeth Killough***
Joo Hyeong Kim*
Sun Ah Kong*
Michael Benjamin Ledford*
Vincent Michael Maniscalco***
Joshua Issac Marlow***
Allison Meghan McGuire
Robyn Marie Menard
Merrick Elizabeth Miles***
Elizabeth Lee Morgan***
James Michael Norby*
Mara Ann Ondock
Courtney Eugene Pate***
Daniel Joseph Peters
James Joseph Pfeiffer
Thomas Gregory Rajala
Jebina Rajbhandari***
Richard Monroe Renfro
Jonathan Lee Rice****
David Michael Roof*
Susan Lynda Roszko***
Willard Mills Salley***
Jennifer Amanda Schaefer**
Benjamin Willis Schmidt*
Brekke Elizabeth Scholtens*
Natalie Michele Sceur**
Ravi Dinesh Shah*
Jessica Elena Sharp***
Joseph Rockwell Skipper*
Lamija Smajlagic
Michael Alan Smith*
Joseph Charles Spagnola

1Double majors
*University Scholars Program
*Cum Laude
**Magna Cum Laude
***Summa Cum Laude
Undergraduate Scholarships and Awards

Scholarships — 2003-2004

ADC Scholarship
Larrisha Nobles

Alumni Loyalty
Samia Ilias

Alumni Loyalty – 2001 Cohort
Joseph Rittiner

Alumni Loyalty Renewable
Clifford Bynum

Alumni Loyalty Transfer
Kevin Brown

Alumni Loyalty Transfers-2001 Cohort
Clifford Bynum

Ameristeel
Christy Taylor

Angelo
Jonathan Rice
Madeha Baqai

Caldwell
Natalie Scurry
Austin Kizzie
Jessica Stewart
Mackenzie Short
Lauren Welch
Elizabeth Morrell
Brian Pridgen

Clarence M. Smith
Meredith Gilliam

Clarence M. Smith, Jr. – 2002 Cohort
Jason Giaquinto

CSEMS
Charles Goss
Joshua McCall

Dean’s Merit
Ashley Forte
Katherine Fraley
Andrew Covington
Brandon Fincher

Dean’s Merit – 2000 Cohort
Ashley Forte
Katherine Fraley
Andrew Covington
Brandon Fincher

Dean’s Merit – 2001 Cohort
Nathan Bowers
Semaj McIver

Dean’s Merit – 2002 Cohort
Jessica Stewart

Duke
Joshua Marlow

Eastman
Jebina Rajbhandari

Forest O. & Sandra Mixon -BS&T
David Brandner

Forest O. & Sandra Mixon - RTI
Elizabeth Parrish

Harold B. Williamson Memorial
Alan Boyd

Henry B. & Virginia Smith
Nathan Bowers

James & Laura Johnson
Baher Eskaf

Joe W. Reese
Matthew Hakos

Louis Whatley
Teresa Steinkopff

Michael B. Christie
Clifford Bynum

Mitchell
David Woolard

National Starch & Chemical
Stephen Young
Ryan Nadel
NCAMP
Oscar E. Faria

Park
Lao Yang
Margaret Linak
Robert Moorefield
Catherine Conway
Shawna Berg
Andrea Allgood
Gerald Herring
Melanie Chin
Christopher Brownfield
Veronica Brumbaugh
Vincent Maniscalco
Nina Chavis
Richard Ezike
Sarah Geouge
Kelsey Norwood
Katherine Watlington
Katherine Fraley
Ashley Forte
Michael Mayo

PENC
Elton Hudson

Powers Manufacturing
Andrew McAllister
Heather Fountain
Sandra Chadwick

Progress
Mackenzie Short

R.N. Rouse & Company
James Carnell

Richard & Sarah Bean
Michael Swanson

Robin Baker Jones
Ngozi Motilewa

Russ O’Dell
Mary Andrews

Russ O’Dell Outstanding Sr Award
Elizabeth Morgan

Russ O’Dell Senior Award
Lauren Killough

Sidney F. Mauney, Jr.
Sandra Chadwick
Student Organizations and Recognition

AIChE Student Chapter

**Officers 2003-2004**
President: Amanda Burris
Vice-President: Paul Antalik
Corresponding Secretary: Natalie Killmon
Treasurer: Tracey Beavers
Recording Secretary: Joseph Spagnola
Chapter Advisor: Dr. John H. van Zanten

**Activities**
- Membership of 198 students.
- Company sponsored luncheons, fall and spring.
- Thirty students attended the national meeting in San Francisco, CA (November 2004)
- Fifteen students attended the Southern Regional Student Chapter Meeting in Atlanta, GA (April 2004).
- Three students (Natalie Killmon, Jason Dobb, Daniel Jones) competed in the Southern Region Student Paper Contest. Ms. Killmon won the competition and will represent the region at the National Meeting.
- Maintained a powerful website for easy access to information.
- Won 2003 Outstanding Student Chapter Award from National AIChE.
- Expanded community service program.

ISPE Student Chapter

**Officers 2003-2004**
Co-Presidents: Ryan Hill
Vice-President: John Krimminger
Secretary: Jenn Poley
Treasurer: Jennifer Lauria
Publicity: Yong Li
Chapter Advisor: Dr. Steven Peretti

**Industry Advisors**
Trish Stewart-Flaherty Jane Brown

Chemical Engineering Honors Society

**Officers 2003-2004**
President: Melanie Chin
Vice-President: Samir Bachour
Secretary: Karen Uffalussy
Senior Representative: Andrea Allgood
Junior Representative: Brian Pidgen
Chapter Advisor: Dr. Peter Kilpatrick

**Activities**
- Mentoring undergrads
- Tutoring ChE 205 students
- Assistance with Open House
- Annual Induction ceremony and social

**Graduating Class Statistics— 2003-2004**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S.</td>
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<tr>
<td>Completed Co-op program</td>
<td>17</td>
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<tr>
<td>Second Degree</td>
<td></td>
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<tr>
<td>Pulp &amp; Paper Technology</td>
<td>16</td>
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<tr>
<td>Chemistry</td>
<td>12</td>
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<tr>
<td>Other</td>
<td>2</td>
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</table>
Cooperative Education Program

A sound curriculum that combines theoretical and practical training in chemical engineering principles and design coupled with professional work experience is the basis of NC State’s Cooperative Education Program. The Cooperative Education Program at NC State provides outstanding undergraduates with terms of full-time study interspersed with up to five semesters and summer sessions of full-time engineering-related employment.

During the 2003-2004 year, 40 chemical engineering majors participated in the Co-op program. The students are full-time employees of the sponsoring company during their terms of work. During 2003-2004, the average monthly salary for Co-op chemical engineers during their first work rotation was $2,808. A high percentage of Co-op students receive offers of professional employment after graduation. Approximately 354 employers in North Carolina and throughout the nation participate in the Co-op program, thus providing a good cross-section of opportunities for industrial experience.

<table>
<thead>
<tr>
<th>Student</th>
<th>Employer</th>
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<tbody>
<tr>
<td>PISCITELLO, JOSEPH KING</td>
<td>BIOGEN - RTP</td>
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<td>PRIEST, LATHHEL SHANE</td>
<td>BIOGEN - RTP</td>
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<tr>
<td>MAGEE, ROSS JAMESON</td>
<td>BIOGEN - RTP</td>
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<tr>
<td>DAY, DAVID ALLAN</td>
<td>BOEHEME FILATEX - REIDSVILLE</td>
</tr>
<tr>
<td>JOHNSON, JEFFREY ALAN</td>
<td>BOEHEME FILATEX - REIDSVILLE</td>
</tr>
<tr>
<td>ESKAF, BAHER SELIM</td>
<td>COGNIS</td>
</tr>
<tr>
<td>BRUN, SEBASTIEN J</td>
<td>COGNIS</td>
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<td>ANDERSON, CATHERINE ELAINE</td>
<td>COGNIS</td>
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<td>STOUT, PETER JEFFREY</td>
<td>DSM</td>
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<td>JONES, KATHERINE MARIE</td>
<td>DUPONT - FAYETTEVILLE</td>
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<td>DENARD, CARL ANDRE</td>
<td>DUPONT - FAYETTEVILLE</td>
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<td>BROWN, KEVIN BENNETT</td>
<td>DUPONT - RICHMOND</td>
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<td>HARRELL, EMILY ANN</td>
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<td>FULP, MEREDITH</td>
<td>DUPONT - RICHMOND</td>
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<td>WILK, THOMAS JOSEPH</td>
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<td>MARKS, FRANCIS MICHAEL</td>
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<td>SCHAEFER, JENNIFER AMANDA</td>
<td>FMC CORPORATION - MD</td>
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<td>SLOAN, MARC RETZER</td>
<td>GE - WILMINGTON</td>
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<td>BERGER, JOHN F</td>
<td>GE - WILMINGTON</td>
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<td>PFEIFFER, JAMES JOSEPH</td>
<td>GLAXO SMITH KLINE - RTP</td>
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<td>JOYNER, KEVIN CLAY</td>
<td>HONEYWELL - MONCURE</td>
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<td>SHAFFNER, FRANK CLY</td>
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<td>BARNES, JONATHAN</td>
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<td>YOUNG, STEPHEN CHARLES</td>
<td>NATIONAL Gypsum</td>
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<td>TRIMBLE, ERIN BASS</td>
<td>NATIONAL STARCH &amp; CHEMICAL</td>
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<td>JOHNSTON, ZEKE HALL</td>
<td>NATIONAL STARCH &amp; CHEMICAL</td>
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<tr>
<td>BEAVERS, TRACY ALLISON</td>
<td>NATIONAL STARCH &amp; CHEMICAL</td>
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<td>PLEMMONS, CHARLIE JOSEPH HUNTER</td>
<td>NOVOZYMES</td>
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<td>TRACY, BRYAN PATRICK</td>
<td>NOVOZYMES</td>
</tr>
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<td>SMITH, CHRISTOPHER REID</td>
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<td>CHAU, JERRY CHUN-YU</td>
<td>PHILIP MORRIS - VA</td>
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<td>GREGORY, STEVEN ROBERT</td>
<td>ROBERT E MASON</td>
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<tr>
<td>RINGWALL, NATHAN PHILLIP</td>
<td>WEYERHAEUSER - BENNETTSVILLE</td>
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<td>WATTS, JERRID</td>
<td>WEYERHAEUSER - BENNETTSVILLE</td>
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<td>WAY, DOUGLAS</td>
<td>WEYERHAEUSER - BENNETTSVILLE</td>
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<tr>
<td>JOHNSTONE, PETER MICHAEL</td>
<td>WYETH LEDERLE - SANFORD</td>
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</tbody>
</table>
Career Placement

Companies Recruiting B.S. Graduates
(Companies listed came to campus for on-campus interviews)
ACCENTURE
ALBEMARLE CORPORATION
BAXTER HEALTHCARE CORPORATION
CATERPILLAR, INC.
CINTAS CORPORATION
CLOROX SERVICES COMPANY/R&D
COTY US, INC.
DUPONT
EASTERN RESEARCH GROUP
EXXONMOBILE
FUJI SILYSIA CHEMICAL USA
GENERAL ELECTRIC COMPANY
GERDAU AMERISTEEL
HONEYWELL
KRUGER, INC.
LINCOLN ELECTRIC
MEAD/WESTVACO/CHEMICAL DIVISION
MICHELIN NORTH AMERICA
MICRON TECHNOLOGY
MILLIKEN & COMPANY
MIT LINCOLN LABORATORY
NAVAL SURFACE WARFARE CTR/CARDEROCK
POPE AIR FORCE BASE
RAYONIER
ROHM & HAAS COMPANY
SCHLUMBERGER OFS
SHELL COMPANIES
SIBSON CONSULTING
TAKATA
TENCARVA MACHINERY COMPANY
TRANE
TYCO ENGINEERED PRODUCTS & SERVICES
UOP
USDA, AMS, COTTON PROGRAM
WYETH VACCINES
YOUR INTERNATIONAL CORPORATION
3V INC.

NACE BS avg. salary: $52,539
NCSU BS avg. salary: $50,935
NCSU Chemical Engineering
Class of 2004
Graduate Program

The graduate program consists of both formal (classroom) educational activities and a research experience.

<table>
<thead>
<tr>
<th>Student Enrollment</th>
<th>-Fall 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S. Candidates</td>
<td>12</td>
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<tr>
<td>Ph.D. Candidates</td>
<td>79</td>
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<tr>
<td>Total</td>
<td>91</td>
</tr>
<tr>
<td>Men</td>
<td>62</td>
</tr>
<tr>
<td>Women</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>91</td>
</tr>
<tr>
<td>U.S. Citizens</td>
<td>52</td>
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<tr>
<td>Foreign</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td>91</td>
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</tbody>
</table>

The foreign students come from 13 countries: Bangladesh, China, Egypt, France, Ghana, Indonesia, Jordan, Kuwait, India, Korea, Taiwan, Turkey, and Venezuela.

Trends in MS. Degrees Granted

Trends in Graduate Enrollment

Trends in Ph.D Degrees Granted
## Graduate Students, 2003-2004

<table>
<thead>
<tr>
<th>Student</th>
<th>Major Professor</th>
<th>Undergraduate School</th>
<th>Matriculated</th>
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</thead>
<tbody>
<tr>
<td>Ahmed, Tamer</td>
<td>DeSimone/Roberts</td>
<td>Cairo University</td>
<td>Fall 2002</td>
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<tr>
<td>Akad, Aysa</td>
<td>Hall</td>
<td>Bogazici University</td>
<td>Fall 2000</td>
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<tr>
<td>Appaw, Collins</td>
<td>Khan/Kadla</td>
<td>USTC</td>
<td>Fall 2000</td>
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<tr>
<td>Attwood, Brian</td>
<td>Hall</td>
<td>University of Buffalo</td>
<td>Fall 1997</td>
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<td>Azeez, Fadhel</td>
<td>Fedkiw</td>
<td>Kuwait University</td>
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<td>Barua, Dipak</td>
<td>Parsons/Osburn</td>
<td>Bangladesh</td>
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<td>Bhatt, Ketan</td>
<td>Vellev</td>
<td>BITS-Pilani</td>
<td>Fall 2001</td>
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<td>Genzer</td>
<td>UDCT</td>
<td>Fall 1999</td>
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<td>IIT, Kharagpur</td>
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<td>UVA</td>
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<td>Chang, Suk Tai</td>
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<td>IIT, Madras</td>
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<td>Parsons</td>
<td>Kyung Hee University</td>
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<td>Colina, Coray</td>
<td>Gubbins</td>
<td>Universidad Simon Bolivar</td>
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<td>Fall 1998</td>
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<td>Frankowski, David</td>
<td>Khan/Spontak</td>
<td>VA Tech</td>
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<td>Freyyerov, Vadim</td>
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<td>Goyal, Amit</td>
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<td>Gupta, Shalini</td>
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<td>I.I.T.-Kanpur</td>
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<td>Fall 2001</td>
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<td>Fall 2000</td>
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<td>Hussain, Yazan</td>
<td>Grant</td>
<td>Jordan University</td>
<td>Fall 2001</td>
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<td>Jain, Surendra</td>
<td>Gubbins</td>
<td>I.I.T.-Kharagpur</td>
<td>Fall 2002</td>
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<td>Jayaraman, Arthi</td>
<td>Hall/Genzer</td>
<td>BITS, Pilani</td>
<td>Fall 2000</td>
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<td>Jerrim, Lindsey</td>
<td>Vellev</td>
<td>Clemson</td>
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<td>Jhon, Youngkuk</td>
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<td>Yonsei</td>
<td>Fall 2003</td>
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<td>Johnson, Matthew</td>
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<td>Fall 2000</td>
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<td>Julson, Alison</td>
<td>Ollis</td>
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<td>Kennedy, Karen</td>
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<td>Georgia Tech</td>
<td>Fall 1997</td>
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## Graduate Students, 2003-2004

<table>
<thead>
<tr>
<th>Student</th>
<th>Major Professor</th>
<th>Undergraduate School</th>
<th>Matriculated</th>
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<tr>
<td>Kim, Jaehoon</td>
<td>Carbonell</td>
<td>Hanyang</td>
<td>Fall 2001</td>
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<td>Kloxin, Chris</td>
<td>van Zanten</td>
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<td>Fall 2000</td>
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<td>Krupa, Kristen</td>
<td>Haugh</td>
<td>Univ. of Dayton</td>
<td>Fall 2002</td>
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<td>Kuncicky, Daniel</td>
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<td>Fall 2002</td>
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<td>Lewis, Jodee</td>
<td>Haugh</td>
<td>Univ of Wisconsin, Platteville</td>
<td>Spr 2002</td>
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<tr>
<td>Li, Yong</td>
<td>Overcash</td>
<td>Tianjin University</td>
<td>Fall 2002</td>
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<tr>
<td>Li, Zhengmin</td>
<td>Hall</td>
<td>Tsinghua University</td>
<td>Fall 1999</td>
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<tr>
<td>Liu, Tao</td>
<td>Roberts</td>
<td>BUCT</td>
<td>Fall 2000</td>
</tr>
<tr>
<td>Mahammad, Shamsheer</td>
<td>Khan</td>
<td>IIT-Madras</td>
<td>Fall 2001</td>
</tr>
<tr>
<td>Mahmuda, Syeda</td>
<td>Khan</td>
<td>Bangladesh</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Marchut, Alexander</td>
<td>Hall</td>
<td>University of Pennsylvania</td>
<td>Fall 2000</td>
</tr>
<tr>
<td>McDiffett, Dana</td>
<td>Grant</td>
<td>Notre Dame</td>
<td>Fall 2002</td>
</tr>
<tr>
<td>Mehan, Pawan</td>
<td>Parsons</td>
<td>Univ of Florida</td>
<td>Fall 2001</td>
</tr>
<tr>
<td>Michel, Joshua</td>
<td>Kelly</td>
<td>Univ. California, Davis</td>
<td>Fall 2000</td>
</tr>
<tr>
<td>Morris, April</td>
<td>Cooper/Spontak</td>
<td>NCSU</td>
<td>Fall 2002</td>
</tr>
<tr>
<td>Moss, Jody</td>
<td>Khan</td>
<td>NCSU</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Nguyen, Hung D.</td>
<td>Hall</td>
<td>University of Florida</td>
<td>Fall 1998</td>
</tr>
<tr>
<td>Park, ChangShin</td>
<td>Haugh</td>
<td>Chonbuk Nat'l. University</td>
<td>Fall 1999</td>
</tr>
<tr>
<td>Park, Kiejin</td>
<td>Parsons</td>
<td>Pusan National University</td>
<td>Fall 2000</td>
</tr>
<tr>
<td>Patel, Nikunj</td>
<td>Spontak</td>
<td>BITS, Pilani</td>
<td>Fall 1999</td>
</tr>
<tr>
<td>Patterson, Joan</td>
<td>Roberts/Khan</td>
<td>Johns Hopkins</td>
<td>Fall 2001</td>
</tr>
<tr>
<td>Phelps, Erin</td>
<td>Hall</td>
<td>Rose-Hulman</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Phillips, Lawson</td>
<td>Carbonell/Kilpatrick</td>
<td>Univ. of Southern Alabama</td>
<td>Fall 2002</td>
</tr>
<tr>
<td>Pikunic, Jorge</td>
<td>Gubbins</td>
<td>Universidad Simon Bolivar</td>
<td>Fall 1998</td>
</tr>
<tr>
<td>Prevo, Brian</td>
<td>Velev</td>
<td>Univ of CA, Davis</td>
<td>Fall 2001</td>
</tr>
<tr>
<td>Salm, Jeffrey</td>
<td>Carbonell</td>
<td>Delaware</td>
<td>Fall 1998</td>
</tr>
<tr>
<td>Sanchez, Angelica</td>
<td>Khan/Fedkiw</td>
<td>Universidad Simon Bolivar</td>
<td>Fall 2001</td>
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<tr>
<td>Santiso, Erik</td>
<td>Gubbins</td>
<td>Universidad Simon Bolivar</td>
<td>Fall 2002</td>
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<tr>
<td>Schneider, Ian</td>
<td>Haugh</td>
<td>Iowa State</td>
<td>Fall 2000</td>
</tr>
<tr>
<td>Schultz, Andrew</td>
<td>Hall/Genzer</td>
<td>University of Tulsa</td>
<td>Fall 1998</td>
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<tr>
<td>Semler, James</td>
<td>Genzer</td>
<td>Michigan Tech</td>
<td>Fall 1998</td>
</tr>
<tr>
<td>Shockley, Keith</td>
<td>Kelly</td>
<td>NM State</td>
<td>Fall 1998</td>
</tr>
<tr>
<td>Sigmion, Susan</td>
<td>Lamb</td>
<td>NCSU</td>
<td>Spr 2002</td>
</tr>
<tr>
<td>Smith, Matthew</td>
<td>Kilpatrick/Genzer</td>
<td>NC State</td>
<td>Fall 2000</td>
</tr>
<tr>
<td>Smith, Nicholas</td>
<td>Lamb</td>
<td>Ohio State</td>
<td>Fall 1997</td>
</tr>
<tr>
<td>Stone, Jason</td>
<td>van Zanten/Genzer</td>
<td>Clemson</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Strickland, Andy</td>
<td>Hall/Genzer</td>
<td>U of SC/Columbia</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Tachdjian, Sabrina</td>
<td>Kelly</td>
<td>CPE Lyon</td>
<td>Fall 2002</td>
</tr>
<tr>
<td>Talwar, Sachin</td>
<td>Khan</td>
<td>IIT, Roorkee</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Tanner, Shaun</td>
<td>van Zanten</td>
<td>Florida State</td>
<td>Fall 2000</td>
</tr>
</tbody>
</table>
## Graduate Students, 2003-2004

<table>
<thead>
<tr>
<th>Student</th>
<th>Major Professor</th>
<th>Undergraduate School</th>
<th>Matriculated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terry, David</td>
<td>Parsons</td>
<td>UNCW</td>
<td>Fall 1999</td>
</tr>
<tr>
<td>Tombokan, Xenia</td>
<td>Carbonell/DeSimone</td>
<td>Wisconsin</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Tomlinson, Michael</td>
<td>Genzer/Gorman</td>
<td>Auburn University</td>
<td>Fall 2000</td>
</tr>
<tr>
<td>Verruto, Vincent</td>
<td>Kilpatrick</td>
<td>Delaware</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Wagoner, Victoria</td>
<td>Hall</td>
<td>UNC</td>
<td>Spr 2003</td>
</tr>
<tr>
<td>Walker, Teri</td>
<td>Spontak/Khan</td>
<td>Univ. of Colorado, Boulder</td>
<td>Fall 1997</td>
</tr>
<tr>
<td>Wang, Chun-Chao</td>
<td>Haugh</td>
<td>Nat’l Taiwan University</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Wang, Guangquan</td>
<td>Carbonell</td>
<td>Dalian U. of Tech.</td>
<td>Fall 1999</td>
</tr>
<tr>
<td>Wegl, Diane</td>
<td>Haugh</td>
<td>VA Tech</td>
<td>Fall 2001</td>
</tr>
<tr>
<td>Wei, Bin</td>
<td>Spontak/Genzer</td>
<td>Zhejiang University</td>
<td>Fall 2000</td>
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<tr>
<td>Weiger, Michael</td>
<td>Haugh</td>
<td>Colorado State</td>
<td>Fall 2002</td>
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<tr>
<td>Whittier, Rachel</td>
<td>Roberts</td>
<td>Auburn</td>
<td>Fall 2002</td>
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<tr>
<td>Wilcox, Esther</td>
<td>Roberts/Spivey</td>
<td>University of Tulsa</td>
<td>Fall 1998</td>
</tr>
<tr>
<td>Woodhead, Jeffrey</td>
<td>Carbonell/DeSimone</td>
<td>Vanderbilt</td>
<td>Fall 2003</td>
</tr>
<tr>
<td>Xu, Dawei</td>
<td>Roberts</td>
<td>Tianjin University</td>
<td>Fall 2000</td>
</tr>
<tr>
<td>Yang, Haiou</td>
<td>Carbonell</td>
<td>Tsinghua University</td>
<td>Fall 2002</td>
</tr>
<tr>
<td>Yerian, Jeff</td>
<td>Fedkiw/Khan</td>
<td>Univ. of Cincinnati</td>
<td>Fall 1997</td>
</tr>
</tbody>
</table>
Graduate Degree Recipients 2003-2004

Master of Science (M.S.) Degrees

August 2003
Pawan Mehan
(Course Only)
(Greg N. Parsons)
B.S., University of Florida

Diane K. Seamans
(Course Only)
(Jason M. Haugh)
B.S., Virginia Tech

Master of Chemical Engineering

December 2003
R. Lawson Phillips
(Peter K. Kilpatrick/Ruben G. Carbonell)
B.S., University of Southern Alabama
Bayer Corp., Clayton, NC

Master of Science (M.S.) Degrees

December 2003
Ketan Bhatt
(Course Only)
(Orlin Velev)
B.S., BITS, Pilani
PhD Program, North Carolina State University

Changwoong Chu
(Course Only)
(Gregory N. Parsons)
B.S., Kyung Hee University
PhD Program, North Carolina State University

Jaehoon Kim
(Course Only)
(Ruben G. Carbonell)
B.S., Hanyang University
PhD Program, North Carolina State University

Sarah Hsu
(Course Only)
(Robert M. Kelly)
B.S., UNC – Chapel Hill

Yazan Hussain
Stiction Reduction Agents Studies Using QCM
(Christine S. Grant)
B.S., Jordan University
PhD Program, North Carolina State University

Joan Patterson
(Course Only)
(George W. Roberts/Saad A. Khan)
B.S., Johns Hopkins
PhD Program, North Carolina State University

Brian Prevo
(Course Only)
(Orlin Velev)
B.S., UC - Davis
PhD Program, North Carolina State University

Angelica Sanchez
(Course Only)
(Saad A. Khan)
B.S., Universidad Simon Bolivar
PhD Program, North Carolina State University

Mahammad Shamsheer
(Course Only)
(Saad A. Khan)
B.S., IIT- Madras
PhD Program, North Carolina State University

Master of Science (M.S.) Degrees

May 2004
Chung-Jung Chou
(Course Only)
(Robert M. Kelly)
B.S., Nat’l Taiwan University
PhD Program, North Carolina State University

Syeda Iffat Mahmuda
(Course Only)
(Saad A. Khan)

Jody Rebecca Moss
(Course Only)
(Saad A. Khan)
B.S., North Carolina State University
AREVA, Richland, Washington
Doctor of Philosophy (Ph.D.) Degrees

August 2003

Lara S. Chang
Biochemical and Biophysical Characterization of Compartmentalizing Proteases from the Hyperthermophilic Microorganism Pyrricus furiosus
(Robert M. Kelly)
B.S., UVA
Post-Doc, Duke University, Durham NC

Teri A. Walker
Modification of Polymer Blend Phase Behavior with High-pressure Carbon Dioxide
(Richard J. Spontak/Saad A. Khan)
B.S., University of Colorado, Boulder
RTP, Research Triangle Park, NC

Doctor of Philosophy (Ph.D.) Degrees

December 2003

Brian Attwood
Monte Carlo Simulations of Solid-Fluid Phase Equilibria for Binary and Ternary Mixtures
(Carol K. Hall)
B.S., University of Buffalo
Environmental Protection Agency, Raleigh, NC

Karen A. Kennedy
Characterization of Phase Equilibrium Associated with Heterogeneous Polymerizations in Supercritical Carbon Dioxide
(George W. Roberts/Joe M. DeSimone)
B.S., Georgia Tech
Air Products and Chemicals, Inc., Allentown, PA

Jorge P. Pikunic
Realistic Molecular Models for Disordered Porous Carbons
(Keith E. Gubbins)
B.S., Universidad Simon Bolivar
Post-Doc, University of Oxford, UK

Nicholas A. Smith
Novel Approaches to Nitride Film Growth: Seeded Supersonic Molecular Beam Methods
(H. Henry Lamb)
B.S., Ohio State University

Jeffrey A. Yerian
Nanocomposite polymer Electrolytes Modulation of Mechanical Properties Using Surface-Functionalized Fumed Silica
(Peter S. Fedkiw/Saad A. Khan)
B.S., University of Cincinnati
ExxonMobil, Houston, TX

Doctor of Philosophy (Ph.D.) Degrees

May 2004

Hung D. Nguyen
Computer Simulations of Protein Folding and Aggregation
(Carol K. Hall)
B.S., University of Florida
Post-Doc, North Carolina State University

Nikunj P. Patel
Nanostructured Polymeric Membranes for Selective CO2 Removal from Light Gas Mixtures
(Richard J. Spontak)
B.S., BITS, Pilani

Andrew J. Schultz
Modeling and Computer Simulation of Block Copolymer/Nanoparticle Composites
(Carol K. Hall/Jan Genzer)
B.S., University of Tulsa
Post-Doc, North Carolina State University

James J. Semler
Design and Interfacial Activity of Copolymers with Controlled Monomer Sequence Distributions
(Jan Genzer)
B.S., Michigan Tech
Lexmark, Lexington, KY

Guangquan Wang
Peptide Ligands that Bind to Staphylococcal Enterotoxin B (SEB)
(Ruben G. Carbonell)
B.S., Dalian University of Technology
Bayer Corp., Clayton, NC
Trends in Graduate Admissions, 1988-2003

![Chart showing trends in graduate admissions from 1988 to 2003. The chart includes data on grad applications, acceptances, and enrollment. The x-axis represents academic years from 1988 to 2004, and the y-axis represents the number of applicants, acceptances, and enrollments.]

Trends in GRE Scores of Incoming Graduate Students, 1991-2003

![Chart showing trends in GRE scores from 1991 to 2003. The chart includes data on verbal, quantitative, and analytical scores. The x-axis represents academic years from 1990 to 2004, and the y-axis represents the scores ranging from 0 to 800.]

Verbal | Quantitative | Analytical
GRADUATE FELLOWSHIPS AND AWARDS, 2003-2004

Alumni Association

General Electric – Future Teaching Fellowship

Erin Phelps
Julie Hayes

Dean’s Fellowship

Ward Fellowship

Brian Crow
Steven Gray
Caryn Heldt
Lindsey Jerrim
Erin Phelps
Jason Stone
Vincent Verruto
Jeffrey Woodhead

Erin Phelps

National Science Foundation

Joan Patterson

National Institute of Health Biotechnology Traineeship Program

Steven Gray
Kristen Krupa
Jodee Lewis
Victoria Wagoner
Research Expenditures

The following graph illustrates the trends in total expenditures from research grants and contracts (not including academic faculty salaries or discretionary funds). These expenditures reflect faculty summer salaries, release time, student salaries (both graduate and undergraduate performing research), equipment, supplies, services, printing, postage, and other operational costs related to research.

CHE Contract and Grant Expenditures
Career Placement

Employers Recruiting MS/PhD ChEs (Fall 2003 & Spring 2004)

**Fall 2003**
- Accenture
- Albemarle Corporation
- Baxter Healthcare Corp.
- Deloitte Consulting
- Dow Chemical Company
- DuPont
- Eastern Research Group
- ExxonMobile
- Fuji Silysia Chemical USA
- General Electric Company
- Gerdau AmeriSteel
- Green Corps
- Kruger Inc.
- Merck & Co., Inc.
- Michelin North America
- Milliken & Company
- MIT Lincoln Laboratory
- Naval Surface Warfare Center
- Rayonier
- Rohm and Haas Company
- Schlumberger OFS
- Shell Companies
- Takata
- Tencarva Machinery Company
- Trane
- Trinity Consultants

**Spring 2004**
- Truegreen/Chemlawn
- UOP
- 3V Inc.
- Coty US, Inc.
- General Electric Company
- Honeywell
- Lincoln Electric
- Michelin North American
- Micron Technology
- Milliken & Company
- MIT Lincoln Laboratory
- Pope Air Force Base
- Rayonier
- Schlumberger OFS
- Shell Companies
- Sibson Consulting
- Takata
- Tencarva Machinery Company
- Trane
- Tyco Engineered Products & Services
- Unilever HPC NA
- USDA, AMS, Cotton Program
- Wyeth Vaccines
- York International Corporation

NACE salary average
- MS: $53,920
- PhD: $72,613
Faculty Activities

The Chemical Engineering faculty at North Carolina State University is an outstanding group of teacher-scholars whose interests encompass most areas of research in chemical engineering. The faculty have strong research associations with not only the traditional academic funding groups in the federal government — NSF, DOE, ARO, NIH, DARPA and others — but also with a number of major corporate sponsors, including DuPont, Mobil Oil, Bayer Corporation, Novo Nordisk, Shell Oil, Exxon, Chevron, Texaco, Hoechst-Celanese, 3M, and Eastman Chemical.

Chemical engineering education has always had a high priority in our department, and our faculty feels a strong sense of responsibility to provide a high quality educational experience for our undergraduate and graduate students. The Department takes great pleasure in providing a scholarly environment where our faculty can develop a balanced approach towards excellence in both teaching and research.

Chemical Engineering Faculty

Ruben G. Carbonell, Frank Hawkins Kenan Distinguished Professor, Co-director of NSF Science and Technology Center for Environmentally Responsible Solvents and Processes, Director of the William R. Kenan Jr. Institute for Engineering, Technology and Science, and Director of the Kenan Center for Utilization of CO2 in Manufacturing (919/515-5118); PhD, Chemical Engineering, Princeton University (1973); biochemical engineering, molecular recognition, bioseparations, immunodiagnostics, colloid and interface science, transport phenomena. [ruben@ncsu.edu]

Joseph M. DeSimone, Co-director of NSF Science and Technology Center for Environmentally Responsible Solvents and Processes and William R. Kenan, Jr. Professor (joint with Department of Chemistry, UNC-Chapel Hill) (919/962-2166); PhD, Polymer Chemistry, Virginia Tech (1990); polymer chemistry and physics, chemistry in compressed media, design of interfacially active agents for near and supercritical fluids, environmentally benign solvents for industrial processes. [desimone@unc.edu]

Peter S. Fedkiw, Associate Department Head and Professor (919/515-3572); PhD, Chemical Engineering, University of California, Berkeley (1978); electrochemical reaction engineering; electrocatalysis, environmental applications of electrochemistry. [fedkiw@eos.ncsu.edu]

Jan Genzer, Associate Professor (919/515-2069); PhD, Materials Science and Engineering, University of Pennsylvania (1995); physics of thin polymer films, interfacial polymer science, morphology control of heterophase polymers, structure/formation of polymer-based nanocomposites. [jan_genzer@unity.ncsu.edu]

Christine S. Grant, Associate Professor (919/515-2317); PhD, Chemical Engineering, Georgia Institute of Technology (1989); surface and interfacial science, mass transfer, environmental engineering. [grant@eos.ncsu.edu]

Keith E. Gubbins, H. Clark Professor (919/513-2262); PhD, Chemical Engineering, University of London (1962); molecular modeling of nanostructured materials, thermodynamics and rate processes in nanoporous and structured materials. [keg@ncsu.edu]

Carol K. Hall, Alcoa Professor (919/515-3571); PhD, Physics, SUNY Stony Brook (1973); molecular thermodynamics and computer simulation, equations of state, polymer modeling, bioseparations, protein folding. [hall@turbo.che.ncsu.edu]

Jason Haugh, Assistant Professor (919/513-3851); PhD, Chemical Engineering, Massachusetts Institute of Technology (1999); signal transduction networks, intracellular processes, biomedical engineering, theoretical biology. [jason_haugh@ncsu.edu]

Robert M. Kelly, Alcoa Professor (919/515-6396); PhD, Chemical Engineering, NC State University (1981); biochemical engineering, biocatalysis at extremely high temperatures, microbial physiology, enzyme engineering. [rmkelly@eos.ncsu.edu]

Saad A. Khan, Professor and Director of Graduate Program (919/515-4519); PhD, Chemical Engineering, MIT (1985); rheology and microstructure of complex materials - gels, suspensions, associative and biopolymers. [khan@eos.ncsu.edu]
Peter K. Kilpatrick, Professor and Head (919/515-7121); PhD, Chemical Engineering, University of Minnesota (1983); surfactant and interfacial science, fluid microstructure, colloidal aggregates, phase equilibria, biotechnology. [peterk@eos.ncsu.edu]

H. Henry Lamb, Associate Professor (919/515-6395); PhD, Chemical Engineering, University of Delaware (1988); kinetics, catalysis, electronic materials processing, surface science. [lamb@eos.ncsu.edu]

P. K. Lim, Professor (919/515-2328); PhD, Chemical Engineering, University of Illinois (1979); interfacial phenomena, homogeneous catalysis, free radical chemistry. [lim@eos.ncsu.edu]

David F. Ollis, Distinguished Professor (919/515-2329); PhD, Chemical Engineering, Stanford (1969); biochemical engineering, photochemical engineering. [ollis@eos.ncsu.edu]

Michael R. Overcash, Professor (919/515-2325); PhD, Chemical Engineering, University of Minnesota (1972); cleaner manufacturing technologies, pollution prevention, and environment. [overcash@eos.ncsu.edu]

Gregory N. Parsons, Professor (919/515-7553); PhD, Physics, NC State University (1990); surface reactions and chemical processes in electronic materials synthesis, bonding structure and electronic properties of inorganic semiconductors and insulators, physics of thin film devices. [parsons@ncsu.edu]

Steven W. Peretti, Associate Professor (919/515-6397); PhD, Chemical Engineering, California Institute of Technology (1986); metabolic characterization and manipulation. [peretti@eos.ncsu.edu]

George W. Roberts, Director of Graduate Recruiting, Professor (919/515-7328); ScD, Chemical Engineering, MIT (1965); chemical reaction engineering, applied catalysis, chemical reactor analysis and design, pollution prevention and control, alternate fuels. [groberts@eos.ncsu.edu]

Richard J. Spontak, Professor (joint with Materials Science and Engineering) (919/515-4200); PhD, Chemical Engineering, University of California at Berkeley (1988); polymer microscopy and spectroscopy, structure and properties of ordered polymeric materials, polymer physics. [rich_spontak@ncsu.edu]

John H. van Zanten, Assistant Professor (919/515-2520); PhD, Chemical Engineering, University of California at Los Angeles (1992); colloidal and macromolecular physics, biophysical phenomena, light, neutron and x-ray scattering. [john_vz@ncsu.edu]

Orlin Velev, Assistant Professor (919/513-4318); PhD, Physical Chemistry, University of Sofia and Bulgarian Academy of Sciences (1996); colloid science and engineering, colloidal interactions, self-assembly and crystallization, nano- and microstructures with photonic, optical and electrical functionality, biosensors. [odvelev@unity.ncsu.edu]

Anka Veleva, Assistant Research Professor (919/515-7176); PhD, Physical Chemistry, Bulgarian Academy of Sciences (1993); biomaterials, tissue engineering of vascular grafts, design of biomimetic surfaces, cell-based bioassays, clinical diagnostics. [anveleva@unity.ncsu.edu]
Activities by Faculty Member

Bullard, Lisa
206 Riddick
(919) 515-7455
lisa_bullard@ncsu.edu

Lecturer and Coordinator of Undergraduate Advising

B.S. North Carolina State University (1986)

Interests: Multidisciplinary process design, teaching effectiveness, advising, educational outreach to K-12

Contributed Presentations


Invited Presentations

Judge for “Junk Box Challenge” event at the State Science Olympiad (April 2004)

Study Abroad Scholarship Selection Committee (March 2004)

Conducted two sessions of chemical engineering demonstrations for 40 7th grade school girls at

2003-2004 Publications


Demonstration on superabsorbent polymers presented to 18 third graders at Vandora Springs Elementary in Garner, N.C. (January 2004)

Member of Goldwater Scholarship Committee, NCSU (2003)

Guest lecture for two sections of a high school class on engineering careers (total students = 40) at Southeast Raleigh High School (October 2003).

“Tips on Teaming,” presented to 25 TA’s at North Carolina State University as part of the College of Engineering’s TA training program (September 2003).

Adventures in High Tech (June 2003). Developed and led a demonstration for this two-week workshop, which was sponsored by Boeing, for middle school students at Centennial Middle School. The first week was spent training the teachers to deliver the demonstrations themselves; the second week was spent working directly with students in the camp.

Student Introduction to Engineering (SITE) program at NCSU (June 2003).
DeSimone, Joseph M.
CB #3290, Kenan Laboratories
William R. Kenan Jr. Distinguished Professor
of Chemical Engineering (NCSU) and Chemistry (UNC Chapel Hill)
B.S. Ursinus College (1986)
Ph.D. Virginia Polytechnic Institute and State University (1990)

Interests: Polymer synthesis in supercritical fluids; surfactant design for applications in interfacial chemistry.

2003-2004 Publications

Publications (Refereed)


**Invited Presentations**


(Conference Panel Participation): Visiting Professor at the University of Michigan, January 15-16, 2000, “Carbon Dioxide Technology Platform from the Synthesis and Processing of Fluoropolymers to Totally Dry Microelectronics Processes and Dry Cleaning Garments”.


(Conference Panel Participation): Board of Chemical Sciences and Technology Meeting (BCST), October 10-11, 2003, Washington, DC Board Member.

(Conference Panel Participation): Carolina Environmental Program Board of Visitors, Morehead City, NC, October 10-11, 2003.


(Conference Panel Participation): Invited to Delaware DuPont for group meetings, continue discussion in big and small group meetings, September 16, 2003.

(Conference Panel Participation): Lecture at the Symposium on Green Chemistry, 86\textsuperscript{th} Canadian Society for Chemistry Conference and 39\textsuperscript{th} IUPAC Congress in Ottawa, August 10-15, 2003, “The Carbon Dioxide Technology Platform”.


Fedkiw, Peter S.
Professor
107 Riddick
B.S. University of Delaware (1974)
Ph.D. University of California, Berkeley (1978)

Interests: Electrochemical reaction engineering; electrocatalysis; environmental applications of electrochemistry

2003-2004 Publications

Published (Refereed)


Xiang-Wu Zhang, Yangxing Li, Saad Khan, and Peter Fedkiw, “Inhibition of Lithium Dendrites by Fumed Silica-Based Composite Electrolytes,” in press, Electrochemical and Solid State Letters.


Invited Presentations

Contributed Presentations


Xiang-Wu Zhang, Yangxing Li, Saad Khan, and Peter Fedkiw, “Inhibition of Lithium Dendrites by Fumed Silica-Based Composite Electrolytes,” Electrochemical Society Meeting, Orlando, FL, October 2003.
Genzer, Jan
Associate Professor
315 Riddick
Dipl-Ing. Institute of Chemical Technology, Czech Republic (1989)
Ph.D. University of Pennsylvania (1996)
jan_genzer@ncsu.edu

Interests: Behavior of polymers and organic liquids at interfaces and confined geometries

2003-2004 Publications

Publications (Refereed)


Invited Presentations


“Combinatorial exploration of physico-chemical properties of surface using surface-bound molecular and macromolecular gradients,” Adhesion Society


Contributed Presentations


“Surface grafted molecular and macromolecular gradients as novel combinatorial materials for studying nanoparticle and protein adsorption on functionalized surfaces,” Presented at the NCSU chemical engineering Schoeneborn presentation,


Grant, Christine
Associate Professor
316 Riddick
(919) 515-2317
grant@eos.ncsu.edu

M.S. Georgia Institute of Technology (1986)
Ph.D. Georgia Institute of Technology (1989)

Interests: Surface and Interfacial Science, Transport Phenomena, Pollution Prevention, Tribology: lubricants for MEMS and extreme environments

2003-2004 Publications

Publications (Refereed)


Invited Presentations


Gubbins, Keith E.
Ph.D. University of London (1962)
W. H. Clark Distinguished University Professor
B.S. Chemistry, University of London (1958)

Interests: Confined materials; adsorption; molecular simulation; surface properties

2003-2004 Publications

Publications (Refereed)


Invited Presentations


Contributed Presentations


K.E. Gubbins and H. Bock, “Inverse Temperature Dependence of Adsorption of Surfactants from...

Hall, Carol  
Alcoa Professor  
119A Riddick  
(919) 515-3571  
hall@turbo.che.ncsu.edu

B.S. Physics, Cornell University (1967)  
M.S. Physics, S.U.N.Y. at Stony Brook (1969)  
Ph.D. Physics, S.U.N.Y. at Stony Brook (1972)

Interests: Statistical thermodynamics and computer simulation, polymers, proteins

2003-2004 Publications

Publications (Refereed)


Invited Presentations


“Computer Simulations of Protein Aggregation,” Chemical Engineering Department, Rensselaer, Troy, New York, April, 2004.

“Computer Simulations of Protein Aggregation,” Chemical Engineering Department, University of Michigan, Ann Arbor, Michigan, April, 2004.

“Computer Simulations of Protein Aggregation,” Chemical Engineering Department, Cornell University, Ithaca, New York, April, 2004.


“Computer Simulations of Protein Aggregation,” Chemical Engineering Department, Colorado State University, Fort Collins, Colorado, September, 2003.

“Computer Simulations of Protein Aggregation,” Chemical Engineering Department, Chemistry Department, University of Oregon, Eugene, Oregon, October, 2003.

“Computer Simulations of Protein Aggregation,” Chemical Engineering Department, California Institute of Technology, Pasadena, California, December, 2003.

“Computer Simulations of Protein Aggregation,” Chemical Engineering Department, University of California Los Angeles, Los Angeles, California, December, 2003.

Contributed Presentations


“Molecular Dynamics Simulations of Micellization in Model Surfactant/CO2 Systems,” AIChE Annual Meeting, San Francisco, November 2003. [with Z. Li, presented by Z. Li].


Haugh, Jason M.  
Assistant Professor  
B.S. North Carolina State University (1994)  
Ph.D. Massachusetts Institute of Technology (1999)

Interests: Biomedical and biochemical engineering; signal transduction networks; mammalian cell engineering

2003-2004 Publications

Publications (Refereed)


Invited Presentations


“Intracellular signal transduction: the importance of being quantitative.” Seminar speaker, Center for Bioinformatics and Computational Biology, Duke University, Durham, NC, 12/2003.

Contributed Presentations


“Spatial analysis of PDGF receptor-mediated 3’ phosphoinositide lipid dynamics in living fibroblasts.” Biomedical Engineering Society Annual Meeting, Nashville, TN, 10/2003 (poster, delivered by Ian Schneider).

“Kinetic analysis and modeling of PDGF receptor/PI3-Kinase/Akt signaling in fibroblasts.” American Institute of Chemical Engineers Annual

“Imaging and modeling PDGF receptor-mediated 3’ PI lipid dynamics in living cells.” American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, 11/2003 (delivered by Ian Schneider).


“Platelet-derived growth factor receptor-mediated 3’ phosphoinositide lipid dynamics in living fibroblasts.” American Society for Cell Biology Annual Meeting, San Francisco, CA, 12/2003 (poster, delivered by Ian Schneider).
Kelly, Robert M.
Alcoa Professor
Suite 3309, Partners II
Director of NCSU Biotechnology Program
(919) 515-6396
rmkelly@eos.ncsu.edu

B.S. University of Virginia (1975)
M.S. University of Virginia (1976)
Ph.D. North Carolina State University (1981)

Interests: Biochemical engineering; biocatalysis at extremely high temperatures; microbial physiology; enzyme engineering; functional genomics

2003-2004 Publications

Publications (Refereed)


Books and Book Chapters


Read, and K.E. Nelson, Eds., Humana Press, Inc., Totowa, NJ.


**Invited Presentations**


**Contributed Presentations**


transporter specificity for the hyperthermophilic bacterium *Thermotoga maritima* based on mixed model analysis of whole genome cDNA microarray data. 11th International Conference on Microbial Genomes, Durham, NC, October, 2003.

Khan, Saad
Professor
B.S.E, Chemical Engineering, Princeton University
Ph.D., Chemical Engineering, Massachusetts Institute of Technology.

**Interests:** Rheology & Structures of Complex systems: Gels, Suspensions, Nanocomposites, Associative polymers & Biopolymers

**2003-2004 Publications**

**Publications (Refereed)**


Invited Presentations

Microsymposium on Rheology, Yamagata University, Japan, March 2004: Rheology, Processing & New Materials in Supercritical CO2.

Tokyo Institute of Technology, Tokyo, Japan, March 2004: Self-assembled Nanocomposite Electrolytes from Fumed Silica and Hectorite Clays.

University of Tokyo, Japan, March 2004: Evolution of Rheology & Microstructure in Mixed Polysaccharide Systems.


Contributed Presentations


204th Meeting of the Electrochemical Society, Orlando, FL, October 2003: Attenuation of Aluminum Current Collector Corrosion in LiTFSI Electrolytes Containing Fumed Silica Nanoparticles. (by Yangxing Li).


Kilpatrick, Peter K.
Department Head
B.S. Occidental College (1978)
Ph.D. University of Minnesota (1983)

Interests: Surfactant and interfacial science; fluid microstructure; colloidal aggregates; phase equilibria; biotechnology.

2003-2004 Publications

Publications (Refereed)


Colloidal and Interfacial Phenomena in the Petroleum Industry: Emulsions, Molecular Aggregation, Liquid Crystalline and Elastic Films, Department of Chemical and Biomolecular Engineering, Georgia Institute of Technology, November 5, 2003

Self-Assembled Bilayer Films on Gold: Incorporation of Helical Peptides and Resulting Electrical Properties, National Institute of Standards and Technology, Gaithersburg, Maryland, February 11, 2004

Biomanufacturing Training and Education Center at NC State University, International Society of Pharmaceutical Engineers, Local Section Meeting, Durham, NC, March 3, 2004

Biomanufacturing Training and Education Center at NC State University, NC State University Board of Visitors Meeting, March 26, 2004

Chemical Characteristics of Heavy Oil and Emulsion Forming Properties, 64th PERF Quarterly Meeting, Calgary, Canada, April 1, 2004

Biomanufacturing Training and Education Center, Department of Food Science, North Carolina State University, April 19, 2004

Biomanufacturing Training and Education Center at NC State University, Ottawa Life Sciences Council, Annual General Meeting, Ottawa, Canada, May 17, 2004

Lamb, H. Henry
Associate Professor
B.S.  North Carolina State University
Ph.D.  University of Delaware

Interests:  Heterogeneous Catalysis; Microelectronics; Surface Science

2003-2004 Publications

Publications (Refereed)


X. Wang, J. J. Spivey, and H. H. Lamb, “NO Decomposition over a Pd/MgO Catalyst Prepared from [Pd(acac)₂],” submitted to Appl. Catal. B.


Invited Presentations


Contributed Presentations


Ollis, David F.
Distinguished Professor                                         (919) 515-2329
B.S.  California Institute of Technology (1963)                              ollis@eos.ncsu.edu
M.S.  Northwestern University (1964)
Ph.D.  Stanford University (1969)

Interests: Photochemical and Biochemical technology; First-year engineering

2003-2004 Publications

Publications (Refereed)


Invited Presentations


“Basis for Creation of Multidisciplinary Design courses and Projects”, D. F. Ollis, Mudd Design conference IV, July 2003, Claremont, CA.


Contributed Presentations

“Research and Proposal Writing: Art and Architecture” NCSU New Faculty Workshop (wth R.Felder, R.Brent, NCSU), August, 2003, NCSU.
Overcash, Michael

317 Riddick
(919) 515-2325
overcash@eos.ncsu.edu

Overcash, Michael

Professor

B.S. North Carolina State University (1966)
M.S. University of New South Wales (1967)
Ph.D. University of Minnesota (1972)

Interests: Design for Environment, Life Cycle Studies, Manufacturing and Supply Chain, Pollution Prevention

2003-2004 Publications

Contributed Presentations


Parsons, Gregory N. 217 Riddick
Professor (919) 515-753
gregory_parsons@ncsu.edu
Ph.D. Physics, North Carolina State University (1990)

Interests: Plasma-enhanced deposition of semiconducting and insulating thin films, including silicon, high-k dielectrics. Fundamental modeling and experiments of surface reactions in thin film deposition. Nano and Molecular Electronics.

2002-2003 Publications

Publications (Refereed)


Invited Presentations

G. N. Parsons “Surface Reactions in High-k and Gate Electrode Deposition” SEMATECH Gate Stack Meeting, Austin, TX March 8, 2004.

Interests: Biocatalysis, bioreactor dynamics, bioremediation, combinatorial molecular biology

2001-2002 Publications

Contributed Presentations


“Integrating Teaming, Writing and Speaking in CHE Unit Operations Lab”, Dave Kmiec, Chris M. Anson, Paula Berardinelli, Lisa Bullard, Deanna P. Dannels, Naomi Kleid, Steven Peretti, James Spivey, Conference Proceedings of the 2003 ASEE Annual Conference in Indianapolis, IN.


Invited Presentations

“A Web-Based Case Study for the Chemical Engineering Capstone Course”, L.G. Bullard and S.W. Peretti, ASEE Annual Conference in Indianapolis, IN, June 2003.


“Integrating Teaming, Writing and Speaking in CHE Unit Operations Lab”, Dave Kmiec, Chris M. Anson, Paula Berardinelli, Lisa Bullard, Deanna P. Dannels, Naomi Kleid, Steven Peretti, James Spivey, ASEE Annual Conference in Indianapolis, IN, June 2003.

“Partnering with a Professional Society: Successful Multidisciplinary Design Project Mentoring with
Roberts, George
Professor
349 Riddick
(919) 515-7328
groberts@eos.ncsu.edu

B.S.  Cornell University (1961)
Ph.D.  Massachusetts Institute of Technology (1965)

Interests:  Kinetics, Reaction Engineering, Applied Catalysis, Pollution Prevention

2003-2004 Publications

Publications (Refereed)


Xu, D., Carbonell, R. G., Roberts, G. W., and Kiserow, D. J., “Phase Equilibrium in the Hydrogenation of Polystyrene in CO2-Swollen Solvents”, submitted to Journal of Supercritical Fluids.

Invited Presentations


Contributed Presentations


Chin, P., Roberts, G. W., Sun, X., and Spivey, J. J., “Considerations for Catalyst Support Selection in


Spontak, Richard J.
Professor
223 Riddick
Penn State University (1983)
University of California at Berkeley (1988)
Ph.D. (1988)
B.S. (1983)
(919) 515-4200
Rich_Spontak@ncsu.edu

Interests: Polymer science and engineering; morphology of nanostructured soft-condensed matter; electron microscopy techniques

2003-2004 Publications

Publications (Referred)


**Invited Presentations**

"Direct 3-D Visualization and Analysis of Complex Polymer Nanostructures," Department of Chemistry, University of Toronto, Toronto, Canada, 2004.

"Molecular and Mesoscopic Design of Multifunctional Polymer Membranes for Gas Separations," Johnson Space Center, National Aeronautics and Space Administration, Houston, TX, 2004.


"Emerging Uses of Polymer Nanocomposites for Catalysis and Selective Molecular Separations," 2nd International Conference on Science and Technology of Composite Materials, Mérida, Yucatán, Mexico, 2003 [plenary].

"Direct 3-D Visualization and Analysis of Complex Polymer Nanostructures," Max Planck Institute of Colloids and Interfaces, Golm, Germany, 2003.


**Contributed Presentations**


van Zanten, John H.  
Assistant Professor  
B.S. UCLA (1986)  
Ph.D. UCLA (1992)  

Interests: Complex Fluids; Colloidal and Macromolecular Physics; Biophysical Phenomena; Lipid, Peptide and Polymer-Based Drug and Gene Delivery Systems; Submicron Particle Sizing; Light, Neutron and X-Ray Scattering

2002-2003 Publications

Publications (Refereed)


Invited Presentations


Contributed Presentations


Velev, Orlin D.
Assistant Professor                             347 Riddick
M.Sc., University of Sofia, Bulgaria (1989)                                    919-513-4318
Ph.D., University of Sofia, Bulgaria (1996)                                   odvelev@unity.ncsu.edu

**Interests:** Colloid science and nanoscale engineering. Assembly of microstructures with photonic, optical and electrical functionality. Chemical and biological sensors.

**2002-2003 Publications**

**Publications (Refereed)**


**Invited Presentations**

ACS PRF Summer School on Nanoparticle Materials, Ypsilanti, MI, June 2004 (2 invited talks).

2004 ACS Spring Meeting, Anaheim, CA, April 2004 (2 invited talks).

NIEHS Nanotechnologies workshop, RTP, April 2004.

MRS Fall Meeting, Boston, MA, December 2003 (2 invited talks).


2003 Composites at Lake Louise Meeting, Lake Louise, Canada (keynote).


NIEHS Nanotechnologies workshop, RTP, April 2004.

MRS Fall Meeting, Boston, MA, December 2003 (2 invited talks).


2003 Composites at Lake Louise Meeting, Lake Louise, Canada (keynote).


NIEHS Nanotechnologies workshop, RTP, April 2004.

MRS Fall Meeting, Boston, MA, December 2003 (2 invited talks).

AIChE Annual Conference, San Francisco, CA, October 2003 (2 talks).
Emeritus Faculty

Beatty, Kenneth O.  
10B Riddick  
R.J. Reynolds Professor Emeritus  
B.S., Lehigh University  
M.S., Lehigh University  
Ph.D., University of Michigan  
Interests: Heat transfer, thermodynamics, biomedical engineering, fire cause and origin  
kobeatty@eos.ncsu.edu

Felder, Richard M.  
224 Riddick  
Hoechst Celanese Professor Emeritus  
B.Ch.E., City College of New York  
M.S., Princeton University  
Ph.D., Princeton University  
Interests: Learning and teaching styles in engineering education, active and cooperative learning methods, engineering curriculum integration  
919-515-2327

Hopfenberg, Harold B.  
216 Riddick  
Camille Dreyfus Professor Emeritus  
S. B. Massachusetts Institute of Technology  
S. M. Massachusetts Institute of Technology  
Ph.D. Massachusetts Institute of Technology  
Interests: Transport and phenomena in polymeric materials applied to pharmaceutical formulations for sustained and controlled release.  
hbh@ncsu.edu

Hubert Winston  
10-B Riddick  
Associate Professor Emeritus  
B.S. North Carolina State University  
M.S. North Carolina State University  
Ph.D. North Carolina State University  
919-515-4471  
winston@eos.ncsu.edu
Faculty Awards and Honors

Lisa Bullard
ASEE-Southeastern Section New Teacher Award

Ruben Carbonell
Fellow, American Institute of Chemical Engineers

Joseph DeSimone
118th NC-ACS Sectional Conference, 2004 NC-ACS Distinguished Lecture Award Winner
Appointed as a Fellow, Defense Sciences Research Council (DSRC) of DARPA (2004-2005)

Peter Fedkiw
Fellow, Electrochemical Society

Jan Genzer
Featured cover illustration in Advanced Materials, September 16, 2003 issue
Featured cover illustration in Macromolecular Theory & Simulations, April 14, 2004 issue

Keith Gubbins
Fellow, American Institute of Chemical Engineers
Graduate Association Lecturer for 2004, University of Florida (Chemical Engineering Dept.)
Alumni Outstanding Research Award, North Carolina State University, 2004.

Jason Haugh
Presidential Early Career Award for Scientists and Engineers (PECASE).

Robert Kelly
2004 Marvin J. Johnson Award in Biochemical Technology, American Chemical Society

David Ollis
NSF Director's Award for Distinguished Teaching Scholars

George Roberts
George H. Blessis Outstanding Undergraduate Advisor Award, AIChE
Francis Michael Marx III - Donald F. Othmer Sophomore Academic Excellence Award, AIChE

Richard Spontak
Elected to Science Advisory Board, SINTEF Materials Technology, Norway
Work featured on the book cover of Developments in Block Copolymer Science and Technology
Micrograph featured on the journal cover of Macromolecular Chemistry and Physics

Orlin Velev
Sigma Xi Faculty Research Award (Sigma Xi NCSU Chapter)
### Courses Taught

#### Fall 2003

<table>
<thead>
<tr>
<th>Course</th>
<th>Title/Instructor</th>
<th>Enroll</th>
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<tbody>
<tr>
<td>205-1</td>
<td>Chem Process Principles/Velev</td>
<td>25</td>
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<tr>
<td>205-2</td>
<td>Chem Process Principles/Bullard</td>
<td>67</td>
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<td>205-P-401</td>
<td>Chem Process Principles/Staff</td>
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<td>205-P-402</td>
<td>Chem Process Principles/Staff</td>
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<td>205-P-403</td>
<td>Chem Process Principles/Staff</td>
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<td>311-1, H-3</td>
<td>Transport Processes I/Grant</td>
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<td>311-2, H-4</td>
<td>Transport Processes I/Parsons</td>
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<td>312</td>
<td>Transport Processes II/Kelly</td>
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<td>315-1</td>
<td>Thermodynamics I/Hall</td>
<td>36</td>
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<td>315-2</td>
<td>Thermodynamics I/Lim</td>
<td>39</td>
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<td>316</td>
<td>Thermodynamics II/ van Zanten</td>
<td>14</td>
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<td>330</td>
<td>Chem Eng Lab I/Lim</td>
<td>21</td>
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<td>330L</td>
<td>Chem Eng Lab I/Lim</td>
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<td>331</td>
<td>Chem Eng Lab II/Lim</td>
<td>41</td>
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<tr>
<td>446-1/546-1</td>
<td>Chem Reaction Design/Roberts</td>
<td>68</td>
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<td>446-2/546-2</td>
<td>Chem Reaction Design/Lamb</td>
<td>39</td>
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<td>450-1</td>
<td>Chem Design I/Peretti</td>
<td>34</td>
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<td>450-2</td>
<td>Chem Design I/Peretti</td>
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<td>461/543</td>
<td>Poly Sci &amp; Technology/Genzer</td>
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<tr>
<td>497/498</td>
<td>Chem Eng Proj/I/Bullard</td>
<td>18</td>
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<tr>
<td>506</td>
<td>Chem Eng Research Lit/Kilpatrick</td>
<td>18</td>
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<td>597C</td>
<td>Mol Cen Engr/Haugh</td>
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<tr>
<td>711</td>
<td>Math Modeling/Fedkiw</td>
<td>32</td>
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<td>713</td>
<td>Thermodynamics/Gubbins</td>
<td>25</td>
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<td>715</td>
<td>Trans Phenom I/Khan</td>
<td>32</td>
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<td>760</td>
<td>Photochemical Engineering/Ollis</td>
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<td>761</td>
<td>Poly Blend &amp; Alloy/Spontak</td>
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<td>810</td>
<td>Supercrit CO₂ Sem/Carbonell</td>
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<td>E101</td>
<td>Intro to Engr/Bullard</td>
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#### Summer Session I 2004

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<th>Course</th>
<th>Title/Instructor</th>
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<tr>
<td>225</td>
<td>Chemical Process Systems/Lamb</td>
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<td>330/330L</td>
<td>Chemical Eng Lab I/Lim</td>
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<td>331</td>
<td>Chemical Eng Lab II/Lim</td>
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#### Spring 2004

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<th>Course</th>
<th>Title/Instructor</th>
<th>Enroll</th>
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<tr>
<td>205</td>
<td>Chem Process Principles/Velev</td>
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<td>205-401</td>
<td>Chem Process Principles/Staff</td>
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<td>205-402</td>
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<td>205-403</td>
<td>Chem Process Principles/Staff</td>
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<td>225</td>
<td>Chem Process Systems/Genzer</td>
<td>75</td>
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<tr>
<td>311</td>
<td>Transport Processes I/Fedkiw</td>
<td>16</td>
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<td>312-1</td>
<td>Transport Processes II/Overcash</td>
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<td>315</td>
<td>Thermo I/Lim</td>
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<td>316-1</td>
<td>Thermo II/Spontak</td>
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<tr>
<td>316-2</td>
<td>Thermo II/ Hall</td>
<td>31</td>
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<tr>
<td>330</td>
<td>Chem Eng Lab I/Lim</td>
<td>57</td>
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<tr>
<td>330L</td>
<td>Chem Eng Lab I/Lim</td>
<td>54</td>
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<td>331</td>
<td>Chem Eng Lab II/Lim</td>
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<td>425/525</td>
<td>Proc Systems Control/Peretti</td>
<td>90</td>
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<td>451</td>
<td>Chem Eng Design II/Bullard/Peretti</td>
<td>86</td>
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<tr>
<td>451P</td>
<td>Chem Eng Design II/Bullard/Peretti</td>
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<tr>
<td>460/560</td>
<td>Elec Matls/Parsons</td>
<td>19</td>
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<td>467/598K</td>
<td>Polym Rheol/Khan</td>
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<td>475/575</td>
<td>Pollution Prev/Grant</td>
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<td>497/498</td>
<td>Chem Eng Proj I/Bullard</td>
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<tr>
<td>551</td>
<td>Biochem Engineering/Haugh</td>
<td>27</td>
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<tr>
<td>596J</td>
<td>Soft Matter/van Zanten</td>
<td>7</td>
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<td>597B</td>
<td>StatMech Flds/Gubbins</td>
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<td>716</td>
<td>Transport Phenom II/van Zanten</td>
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<td>717</td>
<td>Chem Reaction Engr/Lamb</td>
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<td>797</td>
<td>Proposition/Ollis</td>
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<td>810A</td>
<td>CO₂ Seminar</td>
<td>9</td>
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</tbody>
</table>

#### Summer Session II 2004

No lecture courses were offered.
Visitors and Staff

Seminars Presented in the Department 2003-2004

**Fall 2003**

September 8
“Light In and Light Out: Solid State Lighting and Thin Film Photovoltaics”
Tim Anderson
Department of Chemical Engineering
University of Florida

September 29
“Field-Based Colloidal Manipulation for Microfluidics and Photonics”
David Marr
Department of Chemical Engineering
Colorado School of Mines

October 6
Warren L. McCabe Lecture
“Computational and Theoretical Nanoscience: Essential Enabling Tools for Nanotechnology”
Peter T. Cummings
Department of Chemical Engineering
Vanderbilt University
and Nanomaterials Theory Institute, Center for Nanophase Materials Sciences, and Chemical Sciences Division
Oak Ridge National Laboratory

October 20
“Bridging the Liquid Gap: In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces”
Christopher T. Williams
Department of Chemical Engineering
University of South Carolina

October 27
“Liquid Crystals as Amplifiers of Interfacial Phenomena”
Nicholas L. Abbott
Department of Chemical Engineering and Biological Engineering
University of Wisconsin

November 3
Warren L. McCabe Lecture
“Protein Engineering Problems at the Heart of Biomedical Applications”
K. Dane Wittrup
Chemical Engineering & Bioengineering
Massachusetts Institute of Technology

**Spring 2004**

January 12
Dr. Charles Musgrave, Assistant Professor
Department of Chemical Engineering, Stanford University, CA
"Atomic Layer Deposition of High-K Dielectrics for Advanced Integrated Circuits: Quantum Simulations of ALD Chemical Mechanisms"

February 2
Dr. Peter G. Vekilov, Associate Professor
Department of Chemical Engineering, University of Houston, TX
"Fundamental Aspects of Nucleation Theory in the Formation of Protein Condensed Phases"

February 16
Dr. J. David Carlson, Principal Scientist
Lord Corporation, Cary, NC
"Engineering with Magnetorheological Fluids"

February 23
Dr. William M. Reichert, Professor
Department of Biomedical Engineering, Duke University
"High Affinity Augmentation of Endothelial Cell Adhesion to Vascular Grafts: In Vitro and in Vivo Assessment"

March 1
Balaji Rao
Department of Chemical Engineering, MIT, MS
"Hypothesis-Driven Cytokine engineering for Improved Biological Properties"

March 15
Dr. Simon Bare, Principal Scientist
UOP LLC, Des Plaines, IL
"Recent in Situ and Operando XAFS Catalyst Characterization at UOP"

March 18
Dr. Jeffrey Skolnick, Professor and Chair
Center of Excellence in Bioinformatics, University at Buffalo, NY
"Prediction of Protein Structure and Function in the Postgenomic Era"
March 22
Dr. Rhett Brewer
Department of Chemical and Biochemical Engineering, Rutgers University, NJ
"Oxide/Semiconductor Integration for Electronics Applications"

March 29
Thomas Epps
Chemical Engineering and Materials Science, University of Minnesota, MN
"Segregation Strength Effects in ABC Block Copolymers"

April 12
Dr. John Yin, Professor
Department of Chemical Engineering, Univ. of Wisconsin, WI
"From Genome to Organism: a Virus-world View"

April 14
Di Gao
Department of Chemical Engineering, University of California - Berkeley, CA
"Silicon Carbide Technology for Micro- and Nano-electromechanical Systems Applications"

April 26
Gabriel P. Lopez, Associate Professor
Department of Chemical and Nuclear Engineering, University of New Mexico, MN
"Micro- to Nanofluidic Systems for Bioanalysis"
Visiting Researchers

Anka Veleva

Staff

Ms. Laurel Anderson
Ms. Sandra Bailey
Ms. Saundra Doby
Ms. Sheila Hayes
Ms. Gwen Johnson
Ms. Shirley Kow
Ms. Courtney Smith
Ms. Natalie Worth
Mr. Kit Yeung
Financial Summary

Department Sponsors

The Department of Chemical Engineering gratefully acknowledges the support in 2003-2004 provided by the industries, government agencies, and foundations listed below:

American Chemical Society  NCSU Southeast Dairy Foods Research Center
American Red Cross  National Institutes of Health
Army Research Office  National Science Foundation
Atofina Chemicals, Inc.  Nomacorc LLC
Becton Dickinson Company  North Atlantic Treaty Organization
Camille & Henry Dreyfus Foundation  Petroleum Research Fund
Caterpillar, Inc.  Sealed Air Corporation
CCL Biomedical, Inc.  Semiconductor Research Corporation
Champion Technologies  Shell Global Solutions
ChevronTexaco  SolarAmp, Inc
Clemson University  Tosoh Bioscience, LLC
Consortium for Plant Biotechnology Research, Inc.  Troxler Electronic Laboratories, Inc
Defense Advanced Research Projects Agency  UNC - Office of the President
Department of Energy  University of Delaware
Duke University  University of Florida
ExxonMobil Upstream Research Company  University of Georgia
ExxonMobil Research and Engineering  University of North Carolina, Chapel Hill
Lawrence Berkeley National Laboratory  University of North Texas
MiCELL Technologies  University of Tennessee
Nalco Energy Services  US Department of Agriculture
National Aeronautics & Space Administration  US Department of Commerce
National Institute of Standards & Technology  US Navy
NC Biotechnology Center  UT-Battelle LLC
NCSU Animal & Poultry Waste Management Center  Whitaker Foundation
NCSU Faculty Research & Professional Development Fund  
NCSU National Textile Center  