

UNIVERSITY OF WASHINGTON
 DEPARTMENT OF CHEMICAL ENGINEERING
 YEAR IN REVIEW
 ACADEMIC YEAR 2004–2005

JULY 1, 2004–JUNE 30, 2005

DEGREES GRANTED

	Total	Women	Underrepresented Minorities	International
Bachelor of Science	*39	9 (31%)	4 (14%)	3 (10%)
Master of Science	11	1 (9%)	1 (9%)	6 (55%)
Doctor of Philosophy	8	1 (13%)	0	6 (75%)

**Includes Summer 2005 Unit Ops students*

BS DEGREES WITH HONORS

<i>Magna Cum Laude</i> (<u>≥3.84 GPA</u>)	<i>Cum Laude</i> (<u>≥3.72 GPA</u>)
Christina Hartung Jed Matson	Janie Chan Max Greenfeld Dieu-Hien Huynh Adam Oliver

FACULTY PRODUCTIVITY

Refereed papers	97
Other publications	35
Books, chapters, or research monographs	18
Presentations	209
Undergraduates involved in research	35

FINANCES

Research Expenditures (2003–04)	\$5,952,861
Research Awards (2003–04)	\$5,649,617
Endowment Market Value (June 2004)	\$8,660,297

2005–2006 ACADEMIC YEAR

ENROLLMENT

	Total	Women	Underrepresented Minorities	International
Sophomores	8	3 (38%)	0	0
Juniors	65	23 (35%)	4 (6%)	6 (9%)
Seniors	69	24 (35%)	3 (4%)	6 (9%)
Undergraduate Enrollment	142	50 (35%)	7 (5%)	12 (8%)
New Graduates	12	5 (42%)	1 (8%)	2 (17%)
Graduate Enrollment	67	24 (36%)	2 (3%)	25 (35%)

DEGREES GRANTED IN CHEMICAL ENGINEERING, JULY 1, 2004–JUNE 30, 2005

DOCTOR OF PHILOSOPHY

<u>Student</u>	<u>Advisor</u>	<u>Dissertation Title</u>
I-Ting Chow	F. Baneyx	Functional study of ClpB95 and ClpB80, the alternative translation products of the E. coli ClpB transcript
Haixia Dai	D. Schwartz	Engineering nanomaterials with a combined electrochemical and molecular biomimetic approach
Richard C. Daniel	J. Berg	Ink-media interactions in ink-jet printing
Andrew J. Marshall	B. Ratner	Porous hydrogels with well-defined pore structure for biomaterials applications
Ming Ni	B. Ratner	The mechanism of osteoinduction by nacre: Effects of soluble proteins and insoluble matrix
Kunakorn Poochinda	N. Ricker	GaN and InGaN p-i-n photodiodes for radiation sensor development
Haijun Sun	B. Finlayson	Magneto-hydrodynamics stability of an aluminum reduction cell
Jie Zheng	S. Jiang	Molecular simulation studies of biological and chemical interfaces

MASTER OF SCIENCE

<u>Student</u>	<u>Advisor</u>	<u>Thesis Title</u>
Amit Babel	S. Jenekhe	Non-thesis
Dinesh Baskar	S. Adler	High-temperature faraday balance for electronic structure studies in perovskites
Derek Bezaire	D. Schwartz	Transport property determination in microfluidic systems
Andrew Grossman	S. Jenekhe	Non-thesis
Jason Killgore	J. Seferis	Non-thesis
Abhishek Kulkarni	S. Jenekhe	Non-thesis
Peter Laxton	J. Berg	Non-thesis
Chi-Ying Lee	D. Castner	Non-thesis
Jeffrey Nelson	D. Schwartz	Non-thesis
Oludare Ogunyemi	D. Schwartz	Fabrication of patterned inverse opals using electrochemical printing
Joseph Wei	R. Overney	Direct surface permeability analysis combined with nanoscopic material characterization of membrane systems

SURVEYS—SPRING 2005

This survey sent to BS alumni who graduated in 2000 or 2003 drew a response rate of 15% (16/104). Three employers responded. Seniors in CHEM E 486 and 497 also completed the survey, facilitated by staff from the Center for Instructional Development. Seniors had a 71% response rate (30/42). Respondents rated each category as excellent, very good, good, fair, poor, or no opportunity to observe. The number of responses in each category was then converted to a scale of 1–5, with 5 being excellent and 1 being poor. The averages and standard deviations (SD) are summarized below.

ALL RESPONDENTS

	ALUMNI		EMPLOYERS		SENIORS	
	<i>n</i> = 16		<i>n</i> = 3		<i>n</i> = 30	
	avg	SD	avg	SD	avg	SD
<i>These are the criteria that will be used in our accreditation process.</i>						
a. Apply knowledge of mathematics, science, and engineering.	4.19	0.83	4.67	0.58	4.83	0.50
b. Design and construct experiments, as well as to analyze and interpret data.	4.09	1.04	3.67	0.58	3.77	0.82
c. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	3.75	1.18	4.50	0.71	3.50	0.67
d. Function on teams, either within your discipline or multidisciplinary.	4.13	0.81	4.67	0.58	3.70	0.95
e. Identify, formulate, and solve engineering problems.	4.19	0.98	3.33	1.15	3.87	0.90
f. Understand professional and ethical responsibility.	3.50	1.26	4.33	1.15	2.83	1.00
g. Communicate effectively.	3.50	1.41	4.00	1.00	3.10	0.71
h. Understand the impact of engineering solutions in a global, economic, environmental, and societal context.	3.13	1.26	3.50	2.12	2.90	0.96
i. Recognize the need for, and engage in life-long learning.	3.81	1.38	3.33	1.15	3.47	0.94
j. Understand contemporary issues.	3.19	1.28	3.67	0.58	3.13	0.97
k. Use the techniques, skills, and modern engineering tools (computers and/or analytical measurement tools) necessary for engineering practice.	4.07	0.96	4.67	0.58	3.47	0.73

Scholarships and fellowships draw outstanding students to Chemical Engineering and enable them to focus more intensely on their studies. Faculty endowments are crucial for recruiting and retaining top-notch faculty and maximizing research innovation.

UNDERGRADUATE SCHOLARSHIPS, 2005–2006

David Baker	Henry K. Benson Endowed
Christ Fisk	Henry K. Benson Endowed
Yun (Karen) Lou	Henry K. Benson Endowed
Aaron Metzler	Henry K. Benson Endowed
John Roehling	Henry K. Benson Endowed
Woun Sian Souv	Henry K. Benson Endowed
Paul Lang	Chemical Engineering
Adam Beerman	Chevron
Tina Lee	Chevron
Bryan McCulloch	Chevron
Zudtky Wisecarver	Roy C. Fellows Endowed – CoE
Joanne Crompton	Bernice Frank Endowed
Katherine Gibbons	Bernice Frank Endowed
Michael Howard	Bernice Frank Endowed
David Lao	Bernice Frank Endowed
Nicholas Stewart	Bernice Frank Endowed
Jacob Goertz	Hershel D. Graves – CoE
Daniel Yates	Robert J. and Rose M. Glocking Memorial Endowed / Hal C. Rathvon Memorial Endowed
John Frostad	Dale Hendrickson Endowed
Wade Douglas	J. H. Jensen Family Endowed
Seunghee Shelly Jang	Kimberly-Clark Corporation
Zachary Grote	Paul Lueth Endowed
Mallory Davidson	Ralph Wells Moulton Endowed
Kelli Irvin	Ralph Wells Moulton Endowed
Nicole Jurisch	Ralph Wells Moulton Endowed
Vanessa Cullinane	Mary Louise and Harry Tecklenburg Endowed
Diana Chung	Gerard J. Tolentino / Daniel M. and Joyce L. Waldorf Endowed
Erica Peterson	Donald C. Whitworth – CoE

UNDERGRADUATE CHEM E BOOK AWARDS

Hyun Kevin Ahn	Michael Beck
Michelle Hirawady	Henry Kwan
Toai Nguyen	Thin Thin Swe

GRADUATE FELLOWSHIPS, 2004–2005

Janhavi Jogalekar	ChemE Endowed
Saran Poovarodom	ChemE Endowed
Pei-Tzu Wu	ChemE Endowed
Fu-Chen Yu	ChemE Endowed
Benjamin Purvis	D. D. and Sylvia M. Drowley Endowed
Stephen Tebaldi	D. D. and Sylvia M. Drowley Endowed
Jason Hower	Hal C. Rathvon Endowed
Julia Apte	Runstad Family Endowed
Richard Champion	Runstad Family Endowed
Perry Cheung	Runstad Family Endowed
Joseph Fairweather	Runstad Family Endowed
Sarah (Farney) Atzet	Thomas G. Thompson Endowed
Shawn Huff	Thomas G. Thompson Endowed
Ryan Reed	Thomas G. Thompson Endowed

FACULTY ENDOWMENTS

François Baneyx	Charles W. H. Matthaei Professor of Chemical Engineering
John C. Berg	Harry A. and Metta R. Rehnberg Chair of Chemical Engineering
Bruce A. Finlayson	Harry A. and Metta R. Rehnberg Chair of Chemical Engineering
Samson Jenekhe	Boeing–Martin Professor of Engineering
Mary Lidstrom	Frank Jungers Chair of Engineering
Daniel T. Schwartz	Boeing–Sutter Professor of Engineering

AWARDS AND OTHER HONORS

UNDERGRADUATE STUDENTS

Adam Oliver	Fifth Place, AIChE Northwest Regional Student Paper Contest
Montine Swikert	Open House Coordinator

GRADUATE STUDENTS

Amit Babel	American Physical Society, Finalist–2005 Padden Award
Julia Apte	ARCS Fellowship
Matthew Bernards	ARCS Fellowship
Jason Hower	ARCS Fellowship
Newton Samuel	AVS International Symposium, Graduate Student Award–2005
Stephen Tebaldi	William and Marilyn Conner Fellowship
Christina Boozer	Intel Fellowship
Oludare Ogunyemi	Kaiser Aluminum
Abhishek Kulkarni	Materials Research Society, Best Poster Presentation, Spring National Meeting
Peter Laxton	McCarthy Outstanding Teaching Assistant 2003–04
Joseph Wei	McCarthy Outstanding Teaching Assistant 2003–04
Daniel Allred	Nanotechnology IGERT Fellow
Amit Babel	Nanotechnology UIF Fellow
Haixia Dai	Nanotechnology UIF Fellow
Tomoko Gray	Nanotechnology IGERT Fellow
Benjamin Wiley	Nanotechnology IGERT Fellow
Julia Apte	NSF Fellowship
Alexandra Holland	NSF Fellowship
Lan Cao	Society for Biomaterials, Student Travel and Professional Development Award
Fang Cheng	2005 Summer School on Biomaterials, UC Santa Barbara Top Scholar Award
Julia Apte	Top Scholar Award
Sarah (Farney) Atzet	Top Scholar Award
Saran Poovarodom	Top Scholar Award
Dan Allred	UW Center for Nanotechnology, Science for Success, Second Prize

DISTINGUISHED ALUMNUS AWARDS—2005

MR. CORNELIUS “NEIL” DUFFIE (BS 1941)

Mr. Duffie began his career in 1941 with the Pennsylvania Salt Manufacturing Company of Washington. After serving in the U.S. Navy from 1944–46, he joined the Western Kraft Corp., rising to rank of chairman of the board and chief operating officer from 1971–76. He then became president and chief operating officer of Willamette Industries. He has a strong interest in designing cost-efficient plants and is always looking for a market untapped. Mr. Duffie and his wife, Glen (now deceased), are strong supporters of Chemical Engineering. They established the Thomas G. Thompson graduate fellowship fund, named after Mr. Duffie’s cousin, who was a UW professor in Chemistry and Chemical Engineering and for whom the UW’s ocean-going research vessel is named.

DR. BRUCE GATES (PHD 1966)

After receiving his BS degree from UC Berkeley in 1961, Bruce Gates studied kinetics and catalysis in sulfonic acid ion-exchange resins at the UW under Prof. Len Johanson. With help from Dean Joe McCarthy, Dr. Gates received a Fulbright postdoctoral fellowship for study in Germany, where he met his wife, Jutta. Dr. Gates started his career as a research engineer at Chevron in 1967. In 1968, he joined the faculty at the University of Delaware, where he became the H. Rodney Sharp Professor of Chemical Engineering and served as director of the Center for Catalytic Science and Technology. In 1992, he moved to the University of California, Davis, where he is Distinguished Professor in the Chemical Engineering and Materials Science. He has received numerous awards from the AIChE and ACS for his work in catalysis of metal clusters, superacids, and zeolites. Dr. Gates is editor of *Advances in Catalysis* and is an amateur herpetologist.

TRANSITIONS

FACULTY

François Baneyx was appointed the Charles W. H. Matthaei Professor of Chemical Engineering, effective July 1, 2005; and he was appointed acting director of the Center for Nanotechnology (CNT), succeeding Dave Castner, on September 16, 2005.

Dave Castner was promoted from research professor to full professor with tenure, effective September 16, 2005. Dave holds a 50% appointment in chemical engineering and a 50% appointment in bioengineering. He recently completed his role as interim director of the Center for Nanotechnology but continues to serve as director of the National ESCA and Surface Analysis Center for Biomedical Problems (NESAC/BIO), an NIH-funded program, and as director of the Surface Analysis Recharge Center (SARC).

Bruce Finlayson retired with 38 years of service on September 15, 2005. Bruce has been honored with the title of professor emeritus of chemical engineering. He will continue to do research and teach part-time.

Mary Lidstrom was appointed UW vice provost for research, effective November 15, 2005. Mary is professor of chemical engineering and of microbiology and holds the Frank

Jungers Chair of Engineering. She was formerly associate dean for new initiatives in the College of Engineering.

Dan Schwartz was appointed acting associate dean for new initiatives, succeeding Mary Lidstrom, effective November 15, 2005. Dan is the Boeing-Sutter Professor of Chemical Engineering and an adjunct professor of materials science and engineering.

Hong Shen was hired as acting assistant professor temporary, effective August 16, 2005. She will transition to assistant professor of chemical engineering on March 16, 2006. Hong received her BS in 1995 and MS in 1998 in chemical engineering from Tsinghua University, Beijing, China. She received her PhD in 2004 from Cornell University. She has a strong background and competence in cellular and molecular biology and immunology that is well suited to the needs of our department.

Younan Xia was appointed an adjunct professor of chemical engineering. Younan is a professor of chemistry and serves on chemical engineering doctoral committees. He advises one chemical engineering graduate student.

STAFF

Nathan Miller was hired as a senior computer specialist. Nathan came to us from civil and environmental engineering, where he was part of the Transportation Northwest Research Center. He replaced Peter Kane, who resigned in December 2004 to pursue a new career opportunity.

Diane Ronsano was hired as a secretary senior. Diane recently returned to Seattle after living and working in Canada for 20 years. Prior to that, she worked for several years as a UW staff member at Children’s Hospital. Diane is doing double-duty as she replaced both Lai Lu and LaDonna Kennedy, whose positions were combined into one when they retired April 29 and June 30, 2005, respectively.

MORE INFORMATION ON THE WEB

Want to know what all of the faculty have been up to? Individual faculty articles can be viewed on the departmental Web page at: <http://depts.washington.edu/chemeng/>