

## TEACHING PHILOSOPHY – Sharmistha Basu-Dutt

Over the last ten years, my career as a science/engineering educator at the University of West Georgia (UWG) and my passion for teaching and learning has allowed me to interact with students of various career interests and calibers. I have thoroughly enjoyed developing courses and curriculum that challenges the motivated student with a well focused engineering/science career goal. Equally fulfilling has been to participate in programs that provide the unsure and unfocused student a little direction and encouragement to help them develop study habits, skills to manage time and think critically so that they can succeed in college and later on in life. Every second I invest in instilling confidence in the elementary school teacher appears worthwhile when I see an improvement in attitudes towards science teaching and learning in the classroom. As a teacher, I yearn to ensure that the quest for knowledge doesn't go away for my students after graduation. If my students leave class with eternal thirst for learning, I feel I have done my job.

I view learning as a complex and multifaceted process that can be facilitated with a classroom environment that is challenging, yet casual, allowing students to find meaningful relationships between abstract ideas and practical applications in the context of the real world. I strive to look beyond the traditional methods of teaching to expand my students' horizons. Teaching isn't only about motivating students to learn - it's teaching them how to learn. In the classroom, the most exciting, albeit challenging, component has been to find a curriculum that provides students an opportunity to process content that makes sense to them in their frames of reference. My priority is to find ways to connect to a diverse student population so that they can learn concepts and techniques that will open doors of opportunity for them throughout their lives. I pay special attention to creating and designing a nurturing learning environment that incorporates social, cultural, physical and psychological experiences. In *General Chemistry*, discussions on chemical bonding emphasize how the nature of bonding can be used by the chemist to understand mechanisms that can lead to synthesis of new molecules to improve properties, biologist to understand how the human body functions, geologist to understand various processes on the Earth, physicist to understand the physical nature of the universe, and engineer to choose materials for designing a cost-efficient, yet functional product. In the same class, I encourage students to develop projects that allow them to claim ownership for a topic where they utilize their personal experiences. Atomic spectra based projects have ranged from analysis of satellite images of the various rock formations on Hawaii's "Big Island" that one geology student had recently visited; photos of damage due to landslides after an earthquake in Pakistan where another student's grandparents lived; spectral signature effects of algal blooms for an environmentally conscious student; and use of satellite images while tracking Hurricane Katrina for a student who had spent part of her summer vacation helping rebuild parts of New Orleans. In *Chemical Process Principles*, students explore the use of general, organic and physical chemistry concepts while developing material and energy balances in a wide variety of real-life chemical industrial applications. In *Engineering Thermodynamics*, concepts in physics and chemistry are used to evaluate efficiencies of systems that drive the engineering and technological world such as power production, engines, compressors, refrigeration systems. The annual field trip to a power plant in this class has always helped extend the students' learning beyond the classroom setting as they gauge the magnitude of a current technological challenge, the world's energy crisis. I have particularly enjoyed developing special topics courses such as *Industrial Chemistry* and *Law and Administration of Chemicals*. Team-teaching with faculty in Political Science has allowed these courses to have a unique character that ties together appropriate scientific and social concepts for an audience with a variety of scientific, political and social interests.

Over the years I have found that my students' interest and achievement in academics has improved dramatically when they have been able to make connections between what they are learning and how that knowledge will be used in a workplace and/or in a larger society in which they

will live and work. In my freshmen seminar course *Frontiers in Space Science*, pre-engineering students internalize chemistry, physics and mathematics concepts through the process of discovering, reinforcing and relating. With the help of collaborative and cooperative hands-on projects, they project themselves into imagined possible careers and unfamiliar locations including their future workplaces. Students are intrigued when chemical stoichiometry, Newton's laws of motion, algebra and trigonometry are interconnected in an activity where model rockets with a variety of engine types and varying amounts of propellants are built and launched. While building a model of the International Space Station with common polymeric materials, students experience the engineering design process by appreciating the relevance of accurate measurements, chemical bonding and physical strength of materials. In addition, students participate in interactive groups where sharing, communicating, and responding to important concepts and decision-making occur, permitting them to develop into effective inter-disciplinary team members, an attribute that is key to being a successful engineering professional.

As an instructor, I feel the need to adapt my teaching to the changing times and generation of students in my classroom. Each year, the students in my classes are more computer-savvy and are eager to utilize technology as part of their education. Over the last ten years, I have helped to incorporate *computational chemistry and molecular modeling* to supplement lectures, laboratories and research experiences in our undergraduate chemistry curriculum.

I strongly believe that my role as a higher education science faculty should not restrict me to working with college students. In the last two years, I have assisted elementary school teachers to teach in a way that will help them inspire young kids to develop a passion for the sciences. I have collaborated with faculty from the College of Education to develop courses such as *Inquiry in the Science Classroom* and *Science Foundations* where we have sought to blend optimal amounts of science content and pedagogical strategies. Together, we have received funding from the *Teacher Quality Higher Education Program* to develop professional development workshops to guide K-5 teachers in a series of investigations across the sciences to properly conceive inquiry experiences in science teaching and learning. The purpose of all these programs is to expose teachers to a strategy that will allow their students to "do science, not view science," the central theme of the new Georgia Performance Standards.

I have participated extensively in two first year programs such as the learning community and the success seminars at UWG that help freshmen develop academic and non-academic skills to cope with transitioning to college and choosing a career for themselves. Every year, I advise a cohort of twenty-four pre-engineering learning community students using a course *What do you know about Engineering?* to expose them to the profession and curriculum as they develop skills needed to succeed in engineering. As the Director of the Engineering Studies program, I have mentored, counseled and followed over 500 students throughout their college educations and sometimes their careers. The success of the learning community program is evident in the huge increase in the enrollment, transfer and graduation rates of UWG students from Georgia Tech's engineering programs. In the *Freshmen Seminar* course, the focus has been to help undecided majors identify strengths and overcome weaknesses as they adjust to college life via discussions on time management, college study skills, critical thinking, basic computer skills, curriculum and career opportunities. In another RPG effort, I mentored several upper classmen as their *Graduation Guide* to help them develop a strategy that will let them to progress and complete their degree programs.

The best part of my job is the immense amount of opportunity I have to touch the lives of my students in ways that are above and beyond the normal teaching responsibilities. The driving force for all my endeavors has been to connect with my students in a way that is a lot more than being just a professor in the classroom, but by being an advisor and confidant who they feel comfortable coming to after class and many years after graduation.

## CURRICULUM VITAE – Sharmistha Basu-Dutt

### Education

Ph.D. Chemical Engineering	Wayne State University, Detroit, Michigan	May 1995
B.S. Chemical Engineering	Jadavpur University, Calcutta, India	June 1987

### Professional Experience

Assistant Professor of Chemistry, University of West Georgia (UWG)	1997 – 2003
Associate Professor of Chemistry & Director of Engineering Studies, UWG	2003 – present

**Developed several inter-disciplinary courses** including Chemical Process Principles (engineering applications of chemistry), Engineering Thermodynamics (physical chemistry, chemical physics in engineering), Industrial Chemistry (chemistry in the process industry), Law and Administration of Chemicals (science and politics of the chemical industry), What do you know about Engineering? (overview of the engineering profession), Inquiry in the Science Classroom (teaching inquiry science). **Coordinated and/or advised** over 250 pre-engineering learning community students, 500 pre-engineering majors, 100 pre- and in-service K-12 teachers.

### Honors and Awards

#### Teaching Awards

College of Arts & Sciences Excellence in Teaching Award, University of West Georgia	2004-2005
Who's Who among American Teachers	2004-2005
Honors Professor of the Year, University of West Georgia	2002-2003

#### Federal Funding

- *National Science Foundation STEP Program*: “Generating Enthusiasm in Math and Sciences,” \$877000, 2004-2009.

As a co-PI on this grant and an Executive Committee member, I developed inter-disciplinary freshmen seminars such as Frontiers in Space Science (pre-engineering) and participated in CSI:UWG (pre-health); reformed General Chemistry courses to encourage inquiry-based, connected learning experiences in lecture and lab; mentored pre-engineering learning community students; supervised undergraduate research projects.

- *National Science Foundation CCLI Program*: “Visualization & Computation in the Undergraduate Chemistry Curriculum”, \$41450, 2000-2002.

This grant helped introduce molecular modeling exercises in freshmen chemistry and junior/senior level Advanced Laboratories.

- *Teacher Quality Higher Education Program*:

(i) “Invitations to Inquiry for Elementary School Teachers”	\$39188	2007-2008
(ii) “Excursions in Inquiry for Elementary School Teachers”	\$28004	2006-2007

These grants, in collaboration with College of Education faculty, provide professional development workshops for K-12 educators to help them incorporate inquiry based teaching and learning in science content and pedagogy.

#### University System of Georgia Teaching and Learning Grants

- “A multi-tiered approach to teach undergraduate chemistry using visualization and computation,” \$30500, 1997-1999.

This grant provided hardware and software to allow students to explore molecular modeling and visualization activities supplementing laboratory exercises in freshmen, organic, physical, and inorganic chemistry.

- “Engineering in the Creative Coast – A Conceptual Exposition,” \$25000, 2007-2008.

As a co-PI on this grant, I am involved in organizing an engineering summer camp to provide pre-engineering students from USG campuses an opportunity to work on research projects with faculty from Georgia Tech, Atlanta and Savannah campus.

## Selected Publications (*undergraduate student authors in italics*)

- 1) Gardner, K., Croker, E., Basu-Dutt, S., "A Statistical Mechanical Analysis of Energy and Entropy," Chem. Educator, Vol 8, No. 1, 2003, pp. 1-6.
- 2) Croker, E., Basu-Dutt, S., "A Classical and Quantum Chemical Analysis of Gaseous Heat Capacity," Chem. Educator, Vol 7, No. 3, 2002, pp. 136-141.

## Selected Presentations Disseminating Teaching Innovations

- 1) Basu-Dutt, S., Otwell, D., Geisler, V. J., "Making chemistry relevant to the STEM freshmen student: Examples from inter-disciplinary seminar courses developed in a NSF-STEP project," at the National Meetings of the American Chemical Society, Chicago, IL, March 2007.
- 2) Basu-Dutt, S. Marshall, G., "Excursions in inquiry for elementary teachers," at the Georgia Science Teachers Association Conference, Athens, GA, February 2007.
- 3) Wink, D. J., Basu-Dutt, S., "Inquiry in Science and Education," at the PRISM Institute Workshop in Cordele, GA, November 2006.
- 4) Basu-Dutt, S., "Evaluating the heating curve: An inquiry-based freshmen chemistry laboratory," at the Southeastern Meetings of the American Chemical Society, Augusta, GA, November 2006.
- 5) Geisler, V. J., Basu-Dutt, S., et. al., "Generating Enthusiasm for Mathematics and Science at the University of West Georgia," (i) Biennial Conference on Chemical Education, Purdue University, IN, August 2006, (ii) Gordon Conference in Chemical Education Research and Practice, Connecticut College, CT, July 2005.

## Selected Faculty-directed Student Research Projects

<u>Students</u>	<u>Project Title</u>	<u>Academic and career goal/accomplishments</u>
Sangeetha Gomadam	<i>Redox properties of Co/Fe</i>	G. Tech, UWG Chemistry/Chem Engg works at Dow
Amanda Harris	<i>QSAR of barbiturates</i>	UWG – BS (Chemistry) works at GBI
Jill Buchanan	<i>Modeling Cannabinoids</i>	MD - Mercer University
Daniel P. Parker		UWG – BS (Chemistry) works at CDC
David Hathcock	<i>Computational educational modules</i>	Ph.D in Chemistry, Georgia Tech
David Hebert		G. Tech, UWG Chemistry/Chem Engg
Tim Ayers		Ph. Din Chemistry, UGA
Kenneth Stone		Ph.D in Chemistry, UNC-Chapel Hill
Amanda Matthews	<i>QSAR of pesticides</i>	UWG – BS(Biology), Medical School of GA
Damita Pritchett		Industrial chemist
Nimish Pandya		G. Tech, UWG Chemistry/Chem Engg
Scott Tinney	<i>Carcinogenicity of PAH</i>	M.S. (Chemistry), Emory University
Edward Croker	<i>Statistical Mechanics</i>	Construction industry
Kevin Gardner		UWG - BS (Chemistry) works as a cop
Marc Baumgardner	<i>Computational Electrochemistry</i>	G. Tech, UWG Chemistry/Chem Engg works at UOP
Maki Hasimoto	<i>Environmental water chemistry</i>	UWG- BS (Environmental Science)
Vishal Amin	<i>Degradation of Herbicides</i>	Rutgers University – Pre-pharmacy
Russell Phillip		Georgia Tech – Mechanical Engg.
Heather Dahlin	<i>Efficiency of Solar Cells</i>	G. Tech, UWG Chemistry/Chem Engg major
Jalpa Patel		G. Tech, UWG Chemistry/Chem Engg major
Justin Batson	<i>Space Science Modules</i>	G. Tech, UWG Chemistry/Chem Engg major
Sriharsha Rayapati		Aerospace Engineering – Georgia Tech
Nathan Black		Mechanical Engineering – Georgia Tech
Jeremy Ryan	<i>Photochemical gasoline degradation</i>	G. Tech, UWG Chemistry/Chem Engg major
Melissa Usry	<i>Medicinal Chemistry</i>	UGA- Pharmacy program
Ashley Blasiolo	<i>Designing efficient Solar Cells</i>	G. Tech, UWG Chemistry/Chem Engg major
Megan Alexander		UWG pre-engineering major
Samuel Townsend	<i>Developing nanotechnology expt</i>	UWG pre-engineering major
Jarrett Wilbanks		Mechanical Engineering – Georgia Tech

These research projects have led to **8 undergraduate theses**, **23 oral/poster presentations** at regional and national conferences, **2 peer-reviewed publications**.

# Evidence of Teaching Success: Teaching Log, Student Evaluation Summary, Support letters from colleagues and collaborators describing impacts of teaching innovations on student learning

Year	Fall Courses	Summer Courses	Spring Courses
2006	Principles of Chemistry I (59) T Frontiers in Space Science(18) Chemical Process Principles (4)	Inquiry in the Sc. Classroom (5)	R Principles of Chemistry II (51) What do you know about Engg?(19) Engineering Thermodynamics (6)
2005	R Principles of Chemistry I (63) N, T Frontiers in Space Science (18) Chemical Process Principles (4)	N Inquiry in the Sc. Classroom (15)	Principles of Chemistry II (51) What do you know about Engg?(19) Engineering Thermodynamics (6)
2004	R, T Science Foundations (120) Chemical Process Principles (5)	T, R Sc. Foundations (21) Prin. of Chem II (42)	Physical Chemistry II (7) T Environmental Chemistry (8) T Advanced Laboratory (6) Engineering Thermodynamics (3) What do you know about Engg?(19)
2003	T Science Foundations (262) Chemical Process Principles (5)	N Science for Everyday (10)	Physical Chemistry II (11) T Advanced Laboratory (6) Engineering Thermodynamics (3) What do you know about Engg?(14)

Student # in parentheses

Team taught classes: T

New courses: N

Reformed courses: R

Student Evaluation Criteria	2006			2005			2004			2003		
	Fall (N = 81)	Summer (N = 4)	Spring (N = 76)	Fall (N = 70)	Summer (N = 15)	Spring (N = 54)	Fall (N = 125)	Summer (N = 63)	Spring (N = 43)	Fall (N=267)	Summer (N= 10)	Spring (N = 34)
	Weighted median, scale = 5											
Presentation Skills	4.321	5	4.4079	4.11429	4.53333	5	4.01613	4.33333	4.7674	3	4.1	4.1029
Organization and Clarity	4.506	5	4.9605	4.55714	5	5	5	5	4.7674	4	4.1	4.2647
Exams/Assignments/Grading	4.37	5	5	4.11429	4.06667	5	4.03226	5	4.7674	4	4.1	4.1176
Dynamism/Enthusiasm	4.556	5	5	4.7	5	5	4.03226	5	4.7674	4	5	4.5882
General Instructor	4.556	5	5	4.51429	5	5	4.01613	4.33333	4.8256	3	4.1	4.5735

April 28, 2007

Dr. Dorothy Zinsmeister  
Associate Vice Chancellor for Academic Affairs

Dear Dr. Zinsmeister,

It is perhaps my single greatest honor of this year to write a brief letter in support of Dr. Sharmistha Basu-Dutt to be considered for a Regents' Teaching Excellence Award. I have known Dr. Dutt in several capacities and for about as long as she has been at West Georgia, that is, since 1997. Dr. Dutt's scholarly area, however, is chemical engineering and mine is English literature, so when our paths have crossed they have crossed largely in service initiatives or in pedagogy issues, and even when our paths do not cross, there are not many days that go by that I do not hear some form of praise for her work. She has my highest recommendation.

Even though it is not my place as an English literature teacher to comment on her field expertise, I can say as the Acting Vice President for Academic Affairs that by all accounts available to me her expertise is top notch. She has taken the chemical engineering program at West Georgia to a "new level," as they say, and her classes are known all round for being rigorous, as well as engaging and fun. Dr. Dutt has her own particularly version of inquiry-based learning that strives to teach the students not only the particulars of the science involved in the inquiry at hand, but also to understand how to make these connections in other contexts that the students will encounter, those not necessarily in the classroom. She furthermore pushes the concept of connections in what I consider a most profound level that is applicable to all fields. That is, she teaches the students to make the connections between an academic problem and a world problem, from local science to global citizenship. In her portfolio will be found ample documentation of her skills as a teacher of chemical engineering, yet the reader will have to take in the entire portfolio to understand just how cutting edge her larger project really is.

My professional collaborations with Dr. Dutt over the years, and even now really, as I mentioned above, have been in the realm of service activities. I have served on several committees that Dr. Dutt was either a member of or that her work intersected in some way. These committees involve developing a campus web portal for our students, promotion and tenure committees, interdisciplinary studies committees, first-year student experience committees, and most recently she and I have worked together on a faculty

advisory committee to the VPAA. It is quite appropriate to comment on this part of her professional career here because the other letters in her portfolio will talk about her scholarly and pedagogical accomplishments far better than I could ever hope to, but also it seems to me that one of the characteristics of the accomplished Regents' Teacher of Excellence is that he or she is a complete colleague, a person who is often called upon to serve on committees. She is indeed one of these colleagues, often called upon because those who are putting the committees together know that she will perform the work with the utmost of professional acumen and care. Furthermore, Dr. Dutt takes her roles on these committees as seriously as she takes her role as an educator. Therefore, when she is a member of a committee she does not just do the job, but she works the matter in a way to transform it. Thus, it becomes no longer merely committee drudgery but rather a process of changing campus culture.

It is this theme of transformation that I want to return to here and end with. Dr. Dutt has of late added to her repertoire an interest in first-year programs. In truth, she has always had an interest in first-year students as her earlier work on learning communities, particularly those targeted for potential science majors in general and chemistry and/or engineering majors in particular, will attest. Most recently she has taken on the task of teaching our first-year seminar class, UWG 1101. This is a most difficult class to teach because it is hard to balance a certain amount of rigor in order to garner any academic respect, yet this rigor must be maintained in an environment that is supposed to be developmental, supportive, and therapeutic in some ways. Many instructors who teach one of these classes do not teach it a second time. She reflects the challenges in her letter, but she has decided to teach the class again based upon the successes that she has had and the challenges that the class presents. These challenges, furthermore, are the very stimuli of her talent at transformation, and I am very excited to see how she transforms this class into something that will not only be more effective but attractive for both students and faculty.

So I will close this letter with a reaffirmation of my strongest support of Dr. Sharmistha Basu-Dutt for the Regents' Excellence in Teaching Award. Her most recent grants to work develop the inquiry-based learning skills of elementary school teachers which will bear fruit next year is indicative of her career at West Georgia. It is focused on increasing science education in always new and challenging ways. She represents the finish example of the scholarship of teaching and learning and the University System of Georgia can only profit by acknowledging that fact.

Respectfully,

John Micheal Crafton  
Acting Vice President for Academic Affairs

Dr. Dorothy Zinsmeister  
Assistant Vice Chancellor for Academic Affairs  
Board of Regents of the University System of Georgia  
270 Washington Street, SW  
Atlanta, GA 30334-1450

April 25, 2007

Dear Dr. Dorothy Zinsmeister:

This letter is written in support of Dr. Sharmistha Basu-Dutt for the Regents Excellence in Teaching Award. Several of Dr. Dutt's current students who are enrolled in the Honors College at the University of West Georgia were asked to contribute to the letter. Their comments are as follows:

Yashu Jiang, freshman Honors student, wrote:

“Dr. Dutt is one of the most encouraging and personal teachers I have had during my freshman year. Even in a lecture class of sixty, she knew her students on a personal level. She maintains a good sense of humor and tries to relate the concepts to everyday life. To be honest, the first semester of freshman chemistry was extremely easy for me, but I knew that every Thursday, Dr. Dutt set up study sessions to give her students extra help. She is so friendly and approachable that I know I, or anyone else, would always be welcomed to stop in her office for chemistry help, academic guidance, or just a chat about how things are going. I got to know her because I was writing a research paper for honors credit. Dr. Dutt encouraged me to learn about genetics, something I am interested in, through research and referred me to another professor. She also supports students who are interested in doing research with her. While Dr. Dutt is a great teacher in the classroom, her real inspiration lies in her warmth and true caring for her students and for her field outside the classroom. Even though she is not my teacher this semester, I know I can always turn to her for advice and opportunities.”

Savini Santha, freshman Honors student, wrote:

“Dr. Sharmistha Dutt has been my General Chemistry teacher during the past two semesters. I have had two other chemistry teachers (in high school) besides her, and I can honestly say that she is best out of the three, in addition to the one who has impacted me the most. Before I had Dr. Dutt as a teacher, I never really liked Chemistry, but after having her, she makes me want to switch from a Biology major to a Chemistry major. She always encourages me, and whenever I don't really understand a concept or I'm stuck on a problem, she never hesitates to help me. She also really cares about all her students. For instance, before this semester started, there were about nine other students, including myself, whose schedules wouldn't allow them to enroll in a Chemistry workshop. Dr. Dutt noticed the problem and instead of having us all wait until the spring to take the second semester of Chemistry, she created a new workshop section. Not only

does Dr. Dutt care about all of her students, she also teaches in a great way. Her students do not get bored because she lectures for about half of the period, while the other half she leaves for demonstrating problems in context. The way she teaches really helps me to learn because first she explains the theories, then she puts them down on paper by using the theory in an example problem. This way all her students understand and remember things much better. Dr. Sharmistha Dutt is a really amazing teacher, and probably one of the few throughout my entire life that have honestly influenced me in a very positive way.”

Lan Nguyen, freshman Honors student, wrote:

“Dr. Sharmistha Dutt has had a tremendous impact on my academic career. When I first enrolled at the University of West Georgia, I was adamant on a major in Biology, but Dr. Dutt has helped me realize that I have a love for Chemistry. I have always questioned why the things around me happen the way they do, and Dr. Dutt has given me the knowledge I need to answer these questions. Dr. Dutt is an excellent professor and has aided me tremendously in growing as a student. I am currently in her General Chemistry 1212 class and am carrying out experiments in the field of Nanotechnology with her. I have been very fortunate to have been able to interact with her. She truly loves her job, and this passion is evident in her classroom atmosphere. Dr. Dutt provides a positive atmosphere to learn and thrive in and presents the course material in a manner that is easy to comprehend. She conducts class flawlessly and relates the subject to our everyday lives. She goes out of her way to help us understand. Not only does she strive to help her students in the classroom, she also strives to help them outside of class. Before exams, Dr. Dutt often donates her spare time and holds study sessions for her students. She is eager to help students while she has office hours and has always been there when I needed her help. She takes pride in her students’ success and is amazing at what she does.”

If you need additional verification of these comments, please feel free to contact me at 678-839-0634. I am an academic advisor to these and many other students who have been enrolled in Dr. Sharmistha Basu-Dutt’s courses, and I have heard nothing but glowing remarks about her teaching abilities, her caring attitude, and her extreme professionalism.

Sincerely,

Laura H. Lamb  
Student Services Professional  
Honors College  
University of West Georgia

Dr. Dorothy Zinsmeister  
Assistant Vice Chancellor for Academic Affairs  
Board of Regents of the University System of Georgia  
270 Washington Street, SW  
Atlanta, GA 30334-1450

April 25, 2007

Dear Dr. Dorothy Zinsmeister:

This letter is in support of Dr. Sharmistha Basu-Dutt and her consideration for a 2007 Regents Teaching Excellence Awards. I can honestly say that throughout my academic career, no other professor has had quite the impact upon me as that of Professor Dutt. I first met Dr. Dutt as my freshman honors chemistry professor. Throughout that first year, Dr. Dutt became not only my professor, but also my mentor and friend. It was Dr. Dutt who got me to think about Chemical Engineering as a possible field because of my interest in both chemistry and math.

It was only by her direct assistance and involvement that I was able to take part in a dual degree program between the University of West Georgia and Georgia Institute of Technology, in which I was awarded a B.S. in Chemistry from West Georgia, and a B.S. in Chemical Engineering from Georgia Tech. After two years at Georgia Tech, I was able to graduate with a 4.0 GPA and I attribute much of my success to the fantastic foundation I received at West Georgia – primarily because of Dr. Dutt's instruction, as she was my instructor in several chemistry classes as well my first two chemical engineering classes. Dr. Dutt has also made it possible for many other students, other than myself, to take advantage of this program and thus further their education.

Apart from classroom instruction, I also had the opportunity to serve as a research assistant with Dr. Dutt during my third year at West Georgia. As her research assistant, Dr. Dutt gave me the chance to go above and beyond the normal classroom activities and see the real-world applications of what I had learned. Not only do I still use aspects of what I learned during this research; but Dr. Dutt's example as a supervisor also serves as a basis for comparison for my current superiors in industry.

After graduating from West Georgia and Georgia Tech, I accepted a job with Universal Oil Products (UOP), which is a chemical engineering and design firm based outside of Chicago that does design and service work for most of the oil refineries in the world. Much of my success in both the academic and non-academic arenas I attribute to the mentorship, guidance, instruction, and friendship of Dr. Dutt. She was never too busy to answer any question, her door was never closed (even after I transferred from West Georgia), and there seemed to be no limit to the lengths she would go to for her students.

Every student should, at some point, have a teacher like Dr. Dutt. I count myself proud to have been her student and hope that this letter can, in some way, serve as "Thanks" to her for all she did for me. I know that she would count it all as a normal part of her job, but I can assure you that she is most definitely not an "average" professor, and deserves, more than any other professor, teacher, or instructor that I have had, to be granted an award such as this. My hope is that this award would simply serve to show those that do not know Dr. Dutt, what those that do know her already see – that she is an extraordinary person, and a "Teacher" in every sense of the word.

Very Sincerely,

Marc Baumgardner  
Chemical Engineer, Catalysts, Absorbents, and Specialties, UOP  
[marc.baumgardner@uop.com](mailto:marc.baumgardner@uop.com), Phone: 404-226-3310

Dr. Dorothy Zinsmeister  
Assistant Vice Chancellor for Academic Affairs  
Board of Regents of the University System of Georgia  
270 Washington Street, SW  
Atlanta, GA 30334-1450

April 25, 2007

Dear Dr. Dorothy Zinsmeister:

It is a great pleasure to write in support of my excellent colleague, Dr. Sharmistha Dutt for Regents Excellence in Teaching Award. I have known Dr. Dutt since she arrived at West Georgia in 1997. At the time I served as an administrator in the office of the Dean of Arts and Sciences and quickly recognized Dr. Dutt's gift and passion for teaching. Needless to say, I often approached her when working on new initiatives.

One of the first initiatives where I sought Dr. Dutt's expertise was in the area of Engineering Studies. West Georgia had a program in place for many years but fresh ideas were needed to take the program to another level. As the then director of the program transitioned toward retirement, Dr. Dutt dedicated many hours revamping curriculum and advising students. Even before she was named as successor to the director in 2003, she worked diligently on the program and served as an important liaison to Georgia Tech and other regional engineering programs. Our students still benefit from the numerous changes Dr. Dutt brought to the engineering studies program.

Yet, the revamping of engineering studies is only one example of many efforts Dr. Dutt has made on behalf of the students here at West Georgia. She has continually contributed to the first year experience like creating a unique and exciting course in the core called "What do you know about Engineering?" Tied to a freshman learning community this course offers an interdisciplinary introduction to the field for entering first-year students in addition to providing a much needed science based learning community. As a matter of fact, Dr. Dutt was one of the first supporters of the learning community program at West Georgia and has contributed to it since its inception.

Being particularly adept at interdisciplinary teaching, Dr. Dutt went on to create integrative offerings in Chemistry and Engineering and Science Education. As director of interdisciplinary curriculum in our general education program, I specifically sought Dr. Dutt's help in leading the revision of a science content course designed for early childhood education majors. Though the course had been running for many years, it had lost all aspects of interdisciplinary teaching and learning. She immediately recognized what was needed to improve the course, coordinated the co-teaching faculty (representing two different colleges) and reinvented a new version of the course still in place today.

One particular course which exemplifies Dr. Dutt's integrative instincts and love of teaching is her freshman seminar, "*Frontiers in Space Science*." Using a collaborative and cooperative case-study approach, Dr. Dutt links knowledge from the disciplines of math, physics and chemistry in an interesting and provocative way. The course is a prime example of integrative teaching and learning, with activities-based interdisciplinary outcomes. Again her team taught efforts point to what is perhaps one of her strongest points: her enthusiasm for working with teams. Dr. Dutt encourages the same in her students by serving as a "best practice" model.

Other innovative teaching techniques include her work on "*Inquiry in the Science Classroom*" a course designed for K-12 teachers. Her inquiry-based approach and collaborative structure is indicative of the techniques she has mastered through the years. Indeed, this course led to her being awarded two separate Improving Teacher Quality Grants in 2006 and 2007. This ability to translate practice into multiple arenas is certainly one of Dr. Dutt's strengths.

What then is unique and special about Dr. Sharmistha Dutt? I would sum it up in one word: energy. Though trained as an engineer, she has delved deeply into pedagogy and particularly, pedagogy across disciplinary boundaries. Her energetic enthusiasm for collaborative ventures is quite unusual given the sometimes divisive nature of faculty teaching in different departments or colleges. Because of her positive "energy" she has achieved cooperation with a variety of faculty to create better learning environments for hundreds of students.

We had a saying in the Dean's office during the years I served there, that Dr. Dutt "never lets the grass grow under her feet." Indeed, and if the grass ever did grow tall, I can assure you she would be able to analyze this grass from multiple, collaborative and unique perspectives. A technique her lucky students are learning from her everyday.

Sincerely,

Dr. Pauline D Gagnon  
Professor of Theatre,  
University of West Georgia

President-Elect,  
Association for Integrative Studies  
<http://www.units.muohio.edu/aisorg/index.html>

Dr. Dorothy Zinsmeister  
Assistant Vice Chancellor for Academic Affairs  
Board of Regents of the University System of Georgia  
270 Washington Street, SW  
Atlanta, GA 30334-1450

April 25, 2007

Dear Dr. Dorothy Zinsmeister:

It is my privilege, as her collaborator and former Chair, to nominate Professor Sharmistha Basu-Dutt for the award of Regents Excellence in Teaching. As described below, Sharmistha is an outstanding teacher-scholar and mentor. However, three factors make her career at the University of West Georgia (UWG) truly remarkable, worthy of a nation-wide award. First, her scholarly activities truly integrate original research and instruction in the classroom, and enrich the experiences of all students whose major is chemistry. Second, her activities have enhanced undergraduate education in all the departments which impart instruction in the natural sciences and mathematics. Third, her endeavors as a mentor and advisor help advance the careers of individual students, as well as enhance the reputation of UWG as a whole.

Nearly a decade ago, Sharmistha joined the Department of Chemistry as the sole chemical engineer on the faculty. She also brought considerable expertise in computational chemistry in a department otherwise staffed entirely by experimentalists. Sharmistha has done an excellent job of enhancing essentially all upper-level courses in chemistry by incorporating visualization and computation. Thus, an important trend in the discipline, to complement experimental work with computations, recognized by the 1998 Nobel Prize in chemistry for 1998 to Walter Kohn and John A Pople, has become an integral part of the curriculum. *As the instructor who teaches physical chemistry, I particularly value her contributions, made in a very collegial and cheerful fashion.* Quite remarkably, she found the essential funds for the requisite Silicon Graphics Workstations through three successful extramural grants, namely, the National Science Foundation Course Curriculum and Laboratory Improvement (NSF-CCLI) Grant and two Teaching and Learning Grants funded by the University System of Georgia. In this process, Sharmistha has also contributed to the literature for the benefit of other educators by publishing two peer-reviewed articles in the Chemical Educator. *Thus, she has enriched the experience of every undergraduate at West Georgia with a major in chemistry over the past decade, and has also made a significant contribution to the pedagogy of the discipline.*

Sharmistha is at the forefront of innovation not only in her own courses, but in endeavors across disciplinary boundaries. At the departmental level, she is active in reforming the courses in general chemistry taken by 700 plus students annually, drawn from all the natural sciences. In particular, over the past three years, she has introduced inquiry-based laboratory exercises that engage students as active learners. She invited Professor Donald Wink, a pioneer in this pedagogical innovation, and arranged a workshop for the benefit of instructors in all the sciences. In addition, with funding from the Teacher Quality Higher Education Program, she also offers workshops based on this technique for teachers at the elementary, middle grades and high school levels. *Together, these efforts have enhanced instruction significantly for the current generation of students, as well as for students who will attend college during the next*

*decade.*

Sharmistha is a very active member of a group of faculty members implementing course reform across the departments in natural sciences, mathematics and computer science. The effort, *Generating Enthusiasm for Math and Science (GEMS)* is funded by NSF for \$877,000 over five years. Efforts include the introduction of problem solving sessions led by “student leaders” in “Workshops”. Preliminary data indicate an improvement in performance and increased retention. In addition, this grant also funds undergraduate research during summers. *Together, these efforts have truly lived up to the title of the grant and have made a considerable impact on a large number of students.*

As the only engineer on campus, Sharmistha has a profound impact on the Pre-engineering Program, for which she serves as the coordinator. Every year, she organizes a Learning Community of 24 students, a group that takes common courses during the first year. She also serves as the advisor for 75 plus students at any given time. Over the last four years, the number of West Georgia students participating and graduating from the Regents Engineering Transfer Program has increased dramatically and currently 49 students from UWG are progressing well towards graduating with an engineering degree from Georgia Tech. In particular, she has successfully spearheaded a dual-degree program in which students spend three years at West Georgia and two at Georgia Tech and have two undergraduate degrees after five years, one in chemistry and another in chemical engineering. Thus far, 20 students have completed the program with a remarkable success rate, 100%. *When all is said and done, I believe that the success of students is an excellent measure of the accomplishments of a faculty member in an undergraduate department. She cares deeply about her students, both in terms of performance in her courses as well as their career plans, and deservedly earned the affectionate title of Mama Dutt from many of her students in the Pre-Engineering Learning Community.*

A decade of experience as her collaborator and colleague, four years of duties as her Chair, and nearly three years as the Director of the Center for Teaching and Learning (CTL) together allow me to view Sharmistha’s accomplishments from a vantage perspective. We at UWG are a community of professionals, dedicated to our disciplines and to our students. In my view, Sharmistha stands out as an individual who excels in her endeavors, and at the same time helps advance individual students as well as UWG as a whole. I respectfully nominate her for the prestigious Regents Excellence in Teaching Award.

Respectfully submitted by

Farooq A. Khan  
Associate Professor of Chemistry and former Chair (2000–2004)  
Director, Center for Teaching and Learning (CTL)

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AT CHICAGO

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April 27, 2007

Dr. Dorothy Zinsmeister  
Assistant Vice Chancellor for Academic Affairs  
Board of Regents of the University System of Georgia  
270 Washington Street, SW  
Atlanta, GA 30334-1450

Dear Dr. Zinsmeister and Members of the Selection Committee:

I am very pleased to have the opportunity to write a letter in support of **Dr. Sharmistha Basu-Dutt** in her application for a FY 2007 Regents' Teaching Excellence Award. I have known her since 2005 and have come to see her as a valuable colleague, a leader on her campus and within her state, and an insightful educator.

I first met her when she attended a workshop, "Chemical Education: Supporting Student Laboratory Learning," at UIC in July, 2004. This workshop is sponsored by the Center for Workshops in the Chemical Sciences, an NSF-funded faculty development project centered at Georgia State. The CWCS workshops allow faculty to develop additional content knowledge related to their teaching. And Dr. Basu-Dutt was an excellent example of someone who came to learn about the content of teaching, with particular attention to student-centered approaches. She attended this because of the need that the University of West Georgia had for ideas about the basis of teaching in this mode, associated with their NSF "STEP" grant.

Dr. Basu-Dutt was a forceful presence (for the good!) at the workshop, making clear how she and her UWG colleagues viewed learning as an opportunity to connect students to their environment. She presented a subtle but important distinction to those who see "connected" learning as a way to get students to learn content. Instead, she holds well to the idea that connected learning is also about students getting to learn the *connections* themselves. She discussed her work and her plans to do this in both courses for non-majors and for students in courses for chemistry majors.

The next winter I had the opportunity to visit UWG to present a more general workshop on inquiry in science education. She invited me to do this with the proviso that I make it something that could work with other disciplines, not just chemistry. I can attest to the work she did in

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helping me develop new approaches to discussing inquiry, ones that expanded my own understanding of the idea of inquiry. She did this because, through her own teaching and through interactions with her peers at UWG she had come to see very well the opportunities to use inquiry and connected learning strategies with several different disciplines.

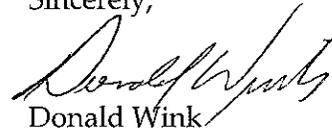
More recently I had the opportunity to present this workshop to a wider audience in Georgia, part of that state's NSF Math and Science Partnership program. I made sure to include Dr. Basu-Dutt in this, both to give her additional exposure to peers elsewhere in Georgia and to be able to make use of insight into how to work inquiry and connected learning into courses at a comprehensive university. It came as no surprise that, while I was able to talk about general teaching environments, Dr. Basu-Dutt's own strongly reflective practice allowed her to follow through with specific suggestions about other types of classrooms.

Through this all I have also been able to develop a sense of her own classroom practice. While I have not had the opportunity to observe this, I have heard much about how she is able and willing to let student ideas develop under her direction. This includes the use of innovative materials but, more important, also involves her active dialog with students. A great many of her comments begin with "and then I had a student who told me..." indicating how well she hears her students in their actual efforts to learn.

She has also taken many of these insights and habits into the K-12 environment around UWG. This includes work with specific teachers and, more recently, with whole-school communities. I think it is a mark of her true excellence that, even as she engages in outreach, she remains rooted in both her own practice and also in her emerging understanding of educational theory.

I hope, then, that you will see in my experience indications of how well Dr. Sharmistha Basu-Dut, beginning from a strong student-centered approach, has been able to reach out to affect other teaching environments. This includes those outside of her department and university. I think she must be considered a very strong candidate for the a Regents' Teaching Excellence Award.

Sincerely,



Donald Wink  
Professor



April 27, 2007

College of Engineering  
Office of the Dean

Dr. Dorothy Zinsmeister  
Assistant Vice-Chancellor for Academic Affairs  
Board of Regents of the University System of Georgia  
270 Washington Street, SW  
Atlanta, GA 30334-1450

Dear Dr. Zinsmeister:

I am writing in support of the nomination of Sharmistha Basu-Dutt for the 2007 Regents' Teaching Excellence Award for Faculty. I have known Dr. Basu-Dutt since shortly after she joined the faculty at the University of West Georgia in 1997 and have worked closely with her since that time in the Dual Degree and Regents' Engineering Transfer Programs.

Students in these transfer programs students take the general education core classes plus all of the math and science and some of the engineering courses required at Georgia Tech. The coordinators at our partner institutions play a key role in this process, as they must make sure that the students are prepared for the rigor of engineering programs at Georgia Tech while recruiting students for the programs, mentoring the students once they have enrolled, and teaching some of the pre-engineering classes.

When I first met Dr. Basu-Dutt, she was in charge of the chemistry/chemical engineering Dual Degree Program, which was greatly enhanced by her development and teaching of two chemical engineering courses and an introductory course entitled "What do you know about Engineering?" In 2003, she became the Director of the Engineering Studies Program, which includes the coordination of both the RETP and the Dual Degree Programs. In that capacity, she has fostered a learning environment that has contributed greatly to the students' success in the study of engineering at Georgia Tech. Students who transfer from UWG in the RETP have a retention/graduation rate of 91%, which is approximately ten points higher than the overall number for transfer students at Georgia Tech. Moreover, since Dr. Basu-Dutt took over as Director of the program, the number of students transferring from UWG in the RETP has increased exponentially - from an average of three to an average of sixteen students per year.

In short, the partnership between Georgia Tech and the University of West Georgia has flourished enormously under Dr. Basu-Dutt's leadership, and I look forward to our continued association in the future. For her excellent work in preparing UWG students for the study of engineering at Georgia Tech, I enthusiastically recommend Sharmistha Basu-Dutt for the 2007 Regents' Teaching Excellence Award.

Sincerely,

A handwritten signature in cursive script that reads "Jane G. Weyant".

Jane G. Weyant, Ph.D  
Assistant Dean  
College of Engineering  
Georgia Institute of Technology

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