The Classroom

Center for the Enhancement of Teaching & Learning

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The Path to Becoming a GT Educator

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"What do you want to be when you grow up?" is perhaps the question about the future that is asked most frequently of children. And yet, how many of us take the time, once we are "grown up," to look back at the path that we have traveled to our current career? What choices did we make - intentionally or through happenchance - that led us to where we are now? This issue addresses this question - how did we get here? What led each of us to become an educator at Georgia Tech?

We have an interview with Dr. Ajit Yoganathan, an award-winning professor from Biomedical Engineering, as well as pieces written by four different members of our academic community here about the routes they followed to arrive where they are today. Many of our students believe that we all knew as small children that the answer to the question posed above was that we wanted to be college faculty one day, and that we just naturally did well in high school, graduated from college, went to graduate school, earned our doctorates, and then took our place on the faculty. But it is clear that while some on our campus did follow this straight and direct path, there are amongst us also people who are on their second or third (at least) career, who didn't learn how to learn until later in their schooling, who swore at an early age that they would never become a teacher, or who could never have imagined working here of all places. That is part of what makes this such a rich environment - we all have different professional life stories to tell.

On a personal note, I would like to dedicate this issue of *The Classroom* to the memory of Georgia Tech educator, Steven Kudravi. As you read through this newsletter, I hope that you will reflect for a few minutes on what has led you personally to this point in your academic career. Perhaps by sharing our stories with each other, and with our students, we can help others along the way. And, then we can start a dialogue about what we, as the collective Georgia Tech academic community, can do to make this path smoother and more rewarding for us and those who will follow in our footsteps. ■

In the CETL Library:

A Book Review

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Rhythms of Academic Life: Personal Accounts of Careers in Academia
Peter J. Frost and M. Susan Taylor, Editors
Foundations for Organizational Science
Thousand Oaks: Sage, 1996. xvi + 518 pp.

This collection of fifty-two essays by diverse hands aims to be "a sourcebook describing the experiences of scholars in different roles and at different transition points and providing sets of guidelines that [the editors] felt might inform the choices of others" (xiv). These two components—first, "personal accounts" by scholars who have achieved some success in their fields and, second, useful suggestions drawn from them—seem obviously complementary; but for the reader it soon becomes clear that virtually every essay is dogged by theoretical concerns about their compatibility.

The first essay, by Arthur G. Bedeian, begins by voicing just this concern: "In prefacing my remarks, let me first note that they are based more on experience than on science. One may thus question their generalizability. My n = 1." Yet he goes on to write, "My remarks are admittedly very prescriptive, with many 'dos' and 'don'ts' "(3). Experience is not science, Bedeian admits. Nevertheless he insists that experience, however unscientific, carries its own kind of prescriptive force. Similarly Walter Nord concludes, "The foregoing observations represent one individual's potentially self-serving recall of experiences that took place some time ago, in settings that were probably atypical even in the time they occurred. Drawing conclusions from them can at best be very risky" (88).

Most of the contributors express misgivings about making pronouncements concerning academic life, claiming expertise in an area where there are no real experts. As the fourth volume in a series titled Foundations for Organizational Science, Rhythms of Academic Life does aspire to be scientific, yet many of the essays are written in what the authors themselves consider an unscientific genre. "Like most academics," one contributor notes, "I am very used to writing in a particular scientific way, with the third person being the dominant voice" (61). Here she writes in the unscientific first person, like her fellow contributors. They are writing "personal accounts," autobiographies, a particular kind of history. While such a genre of academic prose would pose less of a problem for historians, the editors seem not to have thought through how academic autobiography contributes to "organizational science," that is, to the scientific study of organizational behavior and theory, human resource management, and business strategy.

The contributors to the collection come exclusively from these disciplines. There is not a history teacher, or physics teacher, or music teacher to be found among them, and this lack of diversity seriously undercuts the book's claim to represent "academic life" generally. Much of the material is narrower than the editors seem aware. The chapters on collaboration and consultancy, for instance, have little relevance to humanistic disciplines, where collaboration is rare and consultancy nonexistent. More troubling still is the degree to which the collection lacks not just botany and art teachers but scarcely any teachers whatever. Mostly it provides personal accounts not just of academic careers but academic careerism. We find dozens of excellent chapters on doing research

and getting published, getting tenure, reviewing manuscripts, becoming a journal editor, department chair, full professor, dean, and so on up the academic ladder; but of the fifty two "personal accounts of careers in academia" only a handful deal with teaching.

Most, though not all, of the contributors belong to research universities where, they report, teaching is at best undervalued and at worst openly disparaged. At these institutions, according to Marilyn Gist, there is a "widespread belief (which appears to have some merit) that scholarly effectiveness requires mastery of higher-order skills than those required for teaching" (186). Similarly John Miller reports the view in business schools during the Seventies that "any attempt to teach management to inexperienced undergraduates was a futile exercise and certainly an unproductive use of scarce faculty talent" (77). If it is generally assumed that intelligent, productive, tenure-worthy academics shouldn't waste their time teaching, it can surprise no one that during her pre-tenure probation, Christina Shalley "consciously tried to minimize the visibility of my teaching efforts while trying to make my research activities salient" (66). A few manage to escape this self-denying and debilitating pose. Happily for students at Georgia Tech where Dr. Shalley now specializes in executive education, achieving tenure allowed her to come out of the closet as a dedicated teacher.

The common thread among the few contributors who admit to valuing teaching is that for them students matter. "Most of us, most of the time, "John Miller writes, "frame our decisions about teaching as if they were primarily about subject matter, secondarily about technique, and hardly at all about students" (75). What experience, one wonders, could be powerful enough to reverse these priorities? "Late on a Tuesday afternoon in October 1977," Miller recalls, "a student taught me that somebody really did **need** me to do what I was doing" (73). Did he never feel needed before? And why? Was his research so recondite and abstruse that no one took an interest? That cannot be, because research like that does not get published, and Miller is a successful scholar. Taking an interest in someone's work is not the same as needing it, however, and being needed is a powerful antidote to the solitary existence of an academic. Even collaboration cannot measure up to a student's need and a teacher's capacity to satisfy it.

No single scholar is cited more often in this collection than Larry L. Cummings. Indeed Susan Ashford devotes an entire essay to the impact he had on her during her years as a doctoral student at Northwestern. Author, coauthor, and editor of 24 books and 120 articles, leader of some the most distinguished psychological and managerial associations, Cummings could claim any of these as the highest rewards of his career. But he does not. "Students," Cummings asserts, "have been, and continue to be, the most important part of my professional life and satisfactions" (151).

Teaching provides an opportunity for growth throughout the various stages of our academic careers—and it is a variable that has a significant impact on the quality and rhythm of our academic lives. With models like Cummings, we have every reason to hope that excellent teaching will become an ever-higher priority in higher education and a source of joy to those who provide it. ■

Q & A:

An Interview With

Dr. Ajit Yoganathan

The Wallace H. Coulter Distinguished Faculty Chair in Biomedical Engineering and Regents' Professor

Associate Chair for Research
Wallace H. Coulter Department of Biomedical Engineering

Associate Director, Petit Institute for Bioengineering & Bioscience
Georgia Institute of Technology

Dr. Yoganathan earned his B.S. degree from University College of the University of London, England in 1973, and his Ph.D. from California Institute of Technology in 1978. His research deals with experimental and computational fluid mechanics as it pertains to artificial heart valves, left and right sides of the heart, and congenital heart diseases. His work involves the use of laser Doppler velocimetry, digital particle image velocimetry, Doppler ultrasound and magnetic resonance imaging to non-invasively study and quantify blood flow patterns in the cardiovascular system. He has published over 200 peer reviewed articles and book chapters in leading biomedical journals and books. In 1988 he received the Edwin Walker Prize from the Institute of Mechanical Engineers, United Kingdom. He was elected a founding fellow of the American Institute of Medical and Biological Engineering in 1992, and received the H.R. Lissner Award, for his contributions to the field of Bioengineering, in 1997 from the American Society of Mechanical Engineers. In 2005 he was awarded the Theo Pilkinton award, for his contributions to Biomedical Engineering education, by the American Society of Engineering Education. He is a member of the International Standards Organization Subcommittee on Artificial Heart Valves, past member of the NIH Surgery and Bioengineering Study Section, and current chair of the American Society of Mechanical Engineers Bioengineering Division. He is a leading consultant to the medical device industry. He also interacts closely with the FDA.

Q: Tell us about your interests when you were growing up. What was your favorite subject?

A: I was born in Combo, Sri Lanka, where I did my schooling. I attended Royal College, the most prestigious public boy's school in the country. By the age of 14, I was interested in chemistry and applied mathematics which were my favorite subjects. I did not like biology because it required rote memorization. This clearly drove me towards engineering and more significantly Chemical Engineering. I decided to go to the UK to pursue my higher education, since there was no Chemical Engineering degree offered in Sri Lanka. I did my London Advanced Level exam in June spring of 1970 and was admitted to University College London (UCL), University of London and matriculated in September 1970. I graduated from UCL in June 1973 with a First Class BSc. Degree in Chemical Engineering. I graduated at the top of the Engineering Class that year and was awarded the Goldsmid Medal and Prize.

"At the age of 14 . . . chemistry and mathematics were my favorite subjects. I did not like biology . . . this drove me towards engineering. In 1973 Professor William H. Corcoran . . . was to have a tremendous impact on my career . . .a talk he gave introduced me to the intersection of engineering with medicine . . . it was one of those opportunities that you cannot plan for in life."

Q: According to your information on the web (http://www.me.gatech.edu/me/people/academic.faculty/Yoganathan_Ajit.html), the major objective of your research is "to develop a fundamental understanding of the fluid mechanics of valvular heart disease." What sparked your interest and led you to pursue this area of research?

A: During the summer of 1972 I visited the USA and traveled across the country on a $99 Greyhound bus pass – what a trip it was! On returning to London to start my final year in college, I decided to pursue graduate education, a PhD degree, in the USA. I applied to many of the top Chemical Engineering graduate programs in the USA and was admitted to most of them. I decided to accept the GRA offer ($5000 per year plus tuition) from the California Institute of Technology for two reasons: its unique size and reputation; and the weather in Southern California. I arrived in Pasadena, CA in mid-September 1973, after spending the summer with my family in Sri Lanka. I came to Cal Tech with the idea of pursuing research in air pollution, an area of strength at Cal Tech. However, during the first two weeks, when the department faculty gave brief presentations about their research interests, I was

intrigued by the presentation made by Professor William H. Corcoran, a man who was to have tremendous impact on my career. Professor Corcoran was an elder statesman in the Chemical Engineering academic community and also VP for Institute Relations at Cal Tech. Professor Corcoran talked about non-invasive measurement of blood pressure and flow and their relationship to sounds created by the blood flowing through the heart and blood vessels. His presentation fascinated me. This was my introduction to the intersection of engineering with medicine – what we today call Biomedical Engineering. I come from a family of many doctors/physicians. Both my parents were doctors: my father was GP in private practice and my mother was a professor of pathology. Therefore throughout my life I was exposed to various aspects of medicine. I used to accompany my parents during my summer holidays to their places of work. As I stated previously, I hated biology and therefore did not pursue medicine as a career path. However, in October 1973 I was introduced to a new field of engineering in medicine – it was one of those opportunities that you cannot plan for in life. I spent the next week talking in more detail with Professor Corcoran. He also turned out be a true gentleman who had an education and research philosophy that resonated with me and to this day carry forward. With all of this in play, I decided to work with Professor Corcoran for my PhD. My initial research project, which I started in January 1974, involved analyzing heart sounds and attempting to relate them to blood flow phenomena in the heart and large vessels. In early 1975, we were contacted by Dr. Earl C. Harrison from USC-LA County Medical Center. He had heard about our acoustic studies through a collaborator at the Jet Propulsion Laboratory and wanted to apply the same principles, to study the function of prosthetic mechanical heart valves in patients. Dr. Harrison was the Director of the Heart Valve Clinic at USC – LA County Medical Center. This was my introduction to prosthetic heart valves and valve disease. The problems with valvular heart disease and mechanical heart valves and their associated fluid mechanics posed a challenging problem. We immediately started a research collaboration with Dr. Harrison. Another turning point in my career - once again I was lucky to have another mentor who truly appreciated the value of interdisciplinary research. He treated Dr. Corcoran and me as true equals in this research effort. We had a very productive partnership and over the years we have published over 20 peer reviewed papers, many of them having a landmark impact in the field. Since 1975, I have worked in the area of valvular heart disease and prosthetic heart valves. My Cardiovascular Fluid Mechanics Laboratory at Georgia Tech is considered one of the premier locations for heart valve research in the world.

Q: At what point in your adolescence or early adulthood did you discover that pursuing your field through a career in higher education was for you?

A: At the age of 14, I knew I wanted to go to college in engineering. While studying in London I did an internship with Shell Petroleum. Through this internship I realized that I did not want to work in industry with a BS degree and that I wanted to pursue a career in research. During my third year in graduate school with my thesis project in full swing, I made the decision that I wanted to pursue an academic career – at least give it a try. The major reason was the fact that I wanted to pursue research in heart valves and blood flow fluid mechanics. To be able to do this in industry in the late 1970's was highly unlikely. I also enjoyed the freedom that academia provided.

Q: When did you first come to Georgia Tech, and what brought you here?

A: I completed my thesis in September 1977 and stayed on at Cal Tech as post-doctoral fellow with Professor Corcoran in order to obtain my permanent resident status in the USA. I started interviewing for jobs in the summer of 1978. In 1978 there were approximately 150 open faculty positions in Chemical Engineering. In addition the petro-chemical industry was in a boom phase and there were plenty of research positions available in industry. The supply of PhD Chemical Engineers was limited, with about 350 graduating in 1978. It was a great opportunity for me to find the "ideal" job. I interviewed with a number of Chemical Engineering departments, but many of them felt my research interests were on the periphery of mainstream chemical engineering. I had a number of industrial job offers: two from DuPont; one from Shell Oil, etc. One of my junior graduate student colleagues at Cal Tech in Chemical Engineering was Art Stelson – we used to play on the department softball team. His father Tom Stelson was at that time the Vice President for Research at Georgia Tech. Art informed me that the CHE department at Georgia Tech had many faculty openings due to retirements and increasing enrollments. I applied to Georgia Tech and had my initial interview in late September 1978, while attending a national biomedical engineering conference in Atlanta. The interview was interesting and went well. The only person I knew personally at Georgia Tech at that time was Don Giddens (currently Dean of CoE), who was in Aerospace Engineering. I had met Don in the fall of 1975 at a NATO workshop in Cardiovascular Fluid Mechanics in Houston, Texas. I also continued to meet Don over the next few years at national biomedical engineering conferences. I received a job offer from Georgia Tech in November 1978. While I was happy to receive the offer, I had some concerns. Georgia Tech had a great reputation as an undergraduate engineering school. However, Tech's reputation for research, especially in CHE was non-existent. I had a long discussion with my mentor. He told me that Georgia Tech was a great engineering school and the current president (in 1978 – Dr. Joseph Petit) was strategically planning, together with Tom Stelson, on changing Georgia Tech's mission to become a research university. He also pointed out that I had the opportunity of getting in on the ground floor of

"I received a job offer from Georgia Tech in 1978 . . . I had some concerns. GT had a great reputation as an undergraduate engineering school . . . However, Tech's reputation for research . . . was non-existent . . . my mentor told me that Tech's president . . . was strategically planning to change Tech's mission to become a research university. He pointed out that I had the opportunity of getting in on the ground floor . . . "

the research programs at Georgia Tech. He was also impressed with the leadership of the new Chair of Chemical Engineering at Tech, Dr. Gary Poehlein. I accepted the position at Georgia Tech in early 1979 and started my appointment as an Assistant Professor of Chemical Engineering in June 1979. In my mind, I took the appointment for three years with the idea that if it did not work out, I would leave and go to industry.

Q: Tell us about the development of the Joint Department of Biomedical Engineering at Georgia Tech and Emory University. How did it come about?

A: Georgia Tech and Emory established a formal relationship in 1986 with the establishment of the Emory Georgia Tech Biomedical Technology Center (I was co-director of the center from 1992 to 2003). This center was established to foster collaborative research between medical scientists/clinicians at Emory and engineers/scientists at Georgia Tech, through a uniquely conceived seed grant program. Each institution contributed $200,000 on an annual basis to the seed grant program. The program was a tremendous success and has spawned a large number of jointly funded NIH and NSF grants. The return on investment for the universities has far exceeded the money invested. In 1995, under my leadership as Director of the Bioengineering Graduate Program, Georgia Tech and Emory formalized a MD-PhD degree program (MD from Emory, PhD in Bioengineering from GIT). In 1996, Emory appointed Michael Johns, MD, as new Executive Vice President of Health Affairs. Dr. Johns came from Johns Hopkins University where he had been Dean of the School of Medicine. The Biomedical Engineering Department at Johns Hopkins (ranked number 1 then and today in the USA) is housed in the School of Medicine, and Dr. Johns saw first hand the impact that engineering has on modern medicine. After he arrived in Atlanta, he approached Dr. Mike Thomas, Provost at Georgia Tech, about forming a joint department of biomedical engineering.

"In 1998, I was given the task of forming and chairing a joint (GT & Emory) faculty committee with the objective of creating a joint PhD degree in Biomedical Engineering . . . The exercise of creating a new curriculum from scratch with no constraints was a thrilling experience."

A joint, Georgia Tech/Emory, faculty committee, on which I served as a member, was formed in the spring of 1997, chaired by Don Giddens, to discuss the idea of creating a joint department of Biomedical Engineering. Dr. Giddens had been recruited back to Georgia Tech from Johns Hopkins University (where he had been the Dean of Engineering) as a GRA eminent scholar. The joint faculty committee worked very effectively/efficiently and within a two month period delivered a white paper that recommended the creation of the joint department and a joint PhD degree program in Biomedical Engineering. The Board of Regents of the State of Georgia and the Board of Trustees of Emory University approved the formation of the joint department in September 1997. Dr. Don Giddens was appointed as the inaugural chair

of the department by the Dean of engineering (Georgia Tech) and the Dean of medicine (Emory). At that time I was Director of the Interdisciplinary Bioengineering Graduate Program at Georgia Tech. Both Drs. Chamaeu (Dean of Engineering) and Giddens asked me to consider moving my faculty appointment from Chemical Engineering to Biomedical Engineering, as Associate Chair of Graduate Studies. I was delighted by the opportunity and to be involved with the building of a brand new department and accepted the invitation. I started my involvement with new department in October 1997, even though my faculty appointment did not change till July 1998.

Q: What types of educational experiences have influenced your development as a researcher and educator?

A: In 1998, I was given the task of forming and chairing a joint (Georgia Tech & Emory) faculty committee with the task of creating a joint PhD degree in Biomedical Engineering. The committee was given "clean sheet of paper" with no constraints. At the first meeting of the committee (8 faculty from Georgia Tech and 6 faculty from Emory), I challenged them to think outside the box in creating the curriculum for this new program. Over the next 12 months the committee met on a regular basis and not only formulated the curriculum, but also addressed some of the necessary administrative/red tape issues. The exercise of creating a new curriculum from scratch with no constraints was a thrilling experience. The new degree program incorporated the following unique courses: Problem Based Learning (PBL); Lab Rotations; Integrated Fundamental Life Science and Engineering courses that were to be team taught. The new degree was establishing a new paradigm in PhD engineering education at Georgia Tech. Involved with the creation of the PBL courses from the very start was Dr. Wendy Newstetter. One of the people I have enjoyed working with since the creation of the department and in implementing new educational philosophies is Dr. Newstetter. She has had a tremendous influence on me, as we have implemented not only the PhD degree, but also the BS degree.

Q: According to our strategic plan, we are to build a learning community that emphasizes interdisciplinary education and life long learning, and we are to be a model for others to follow. What does the exemplary model look like? What is your vision of an outstanding learning community that develops future leaders?

A: My educational experience at UCL and Cal Tech influenced how I approach teaching at Georgia Tech. It is a teaching philosophy I have espoused throughout my teaching career. I use my lectures only as a foundation ("scaffolding" as Wendy calls it). Students are required to do more self learning using materials in the "library." I also instill the concept of life long learning in all my classes and to my graduate students, a philosophy I learned at Cal Tech. I do not spoon feed students – they need to be able to think for themselves. I do not grade my classes on a curve.

Q: What are some of the key factors in helping students succeed and develop as leaders?

A: I learned some important lessons during my graduate training at Cal Tech under the mentorship of Professor Corcoran. I have tried to pass on these lessons to both graduate and undergraduate students who have worked in my laboratory over the past 26 years. I give my grad students a large degree of freedom and responsibility, but on the other hand I expect them to be self motivated and self starters, i.e.: ***the price of freedom is "high"*** – as I learned from Professor Corcoran. I expect them to mentor undergraduates during their research work. They also have

to be able to multi-task, i.e., work on projects not directly related to their thesis research. All graduate and undergraduates in my lab are exposed to the TEAM concept. I do not tolerate students who cannot work in a team setting. My students learn very early on to work with our medical colleagues in an interdisciplinary environment. In order to do so they must be willing to expand their knowledge base/horizons so that they may communicate effectively with medical community. I believe this type of training gives them skill sets to succeed in their future careers as leaders in whatever field they chose to pursue. *In order to be successful leaders students must be self starters; assume responsibility; be team players and motivate those around them; not be afraid to fail, but when they do, learn from their mistakes. Students must be open minded, think outside the box and be able to recognize unique opportunities to change course or direction in their learning/career paths.*

Q: What strategies are effective in overcoming the communication barriers that hamper interdisciplinary efforts among disciplines?

A: In order to be successful in interdisciplinary efforts, both education and research, one has to break down the traditional barriers and the sand lot/silo mentality that exits in most of traditional engineering. We must encourage faculty to think outside the box when they prepare their teaching materials. They must integrate different educational experiences and disciplines while making sure that the student builds upon knowledge gained from their previous classes. We need to reward faculty who make the effort to develop new interdisciplinary courses and develop interdisciplinary research programs. In my opinion, Problem Based Learning is a great tool for inculcating interdisciplinary learning. Providing the interdisciplinary work environments, such as those provided in the Parker Petit and U.A. Whitaker buildings, enhances interactions and communications not only between faculty from different disciplines, but also among graduate and undergraduate students and research staff (post-doctoral fellows). These two buildings exemplify our, Georgia Tech's, vision towards 21st century interdisciplinary education and research.

Q: What advice do you have for those who aspire to be outstanding educators?

A: Those who wish to be outstanding educators, at the high school and university levels, need to be willing to espouse the philosophy of life long learning; of problem based education rather than rote teaching; be willing to continuously think outside the box; be willing to be challenged by their students and not feel threatened; and most importantly be excited about higher education. ■

In the CETL Library:

A Book Review

by Steven P. Girardot
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Life on the Tenure Track:
Lessons from the First Year
James M. Lang
Johns Hopkins University Press, Baltimore, 2004
ISBN 080188103X

During every PhD student's career there comes a time when the coursework is complete, the qualifying exams are passed, and the dissertation research is well underway. For the first time, phrases that involve "*when* I finish my PhD" instead of "*if* I finish my PhD" begin to enter conversations. Simultaneously, however, a new stress begins to emerge. This stress is centered on the question, "What am I going to do after I am done?"

In his book *Life on the Tenure Track: Lessons from the First Year*, Jim Lang describes his answer to that question. Specifically, he chronicles his first year as a tenure-track assistant professor of English at Assumption College, a small Catholic liberal arts college in Worcester, Massachusetts. Written for junior faculty and graduate students aspiring to become junior faculty, *Life* is an open and honest depiction of the frustrations, challenges, and triumphs experienced by both a new college teacher and a new member of the faculty (and there are distinct differences in these roles!). Beginning with August 2000 concluding with August of 2001, each chapter narrates one month of the year, describing lessons learned from "some aspect of life as a junior faculty member teaching at an American college today." For example, in the "November" chapter, Lang humorously describes his aggravation with service commitments. He begins the chapter simply by stating, "I hate meetings." At the end, he advises:

> If you find yourself stuck in meetings for half of your week because you have been bullied into accepting more service assignments than you can handle, or because you are hoping that an exemplary service record will make up for your failings as a teacher and writer, I would encourage you to do as I have learned to do in meetings…I always- and this is absolutely key- find a seat at the corner of the table. I write the date and the title of the committee, large and legibly, at the top of my notepad, for all to see. Then, as the meeting begins, I lean back in my seat, legs crossed, notepad resting on my thigh, and quietly work on my lesson plans.

This passage is indicative of the personal and conversational writing style used throughout the book. Those familiar with the *Chronicle of Higher*

Education's "First Person" series will immediately recognize this style (in fact, the book is partly based on columns Lang wrote for the *Chronicle*). Underlying much of the book are insights into the struggles of trying to be a good college teacher. Before accepting his tenure-track position, Lang worked as assistant director at Northwestern's Searle Center for Teaching Excellence, under the guidance of Ken Bain (author of *What the Best College Teachers Do).* As a result of this experience, he frequently discusses his attempts at incorporating his knowledge of best practices of teaching and learning into his undergraduate classes- including what succeeded and what failed. He also includes a brief appendix listing teaching resources for first-year faculty (one of which is Bain's book). Finally, Lang does not limit himself to writing about his struggles in the college setting. Throughout the "lessons," he weaves stories and introspections of his personal dilemmas, his family life, living in a small New England town, his spirituality, and even his ongoing struggle with Crohn's disease- all of which become influential factors in the first year of his faculty career. Because the book was written in 2003, Lang is able to interject reflective comments- merging his present-day perspectives with those from that first year (and he very clearly distinguishes these "looking back" comments).

Overall, *Life on the Tenure Track* is an engaging and upbeat book. Although the ending is given away in the prologue (he is still at Assumption College and goes up for tenure in 2006), it nevertheless is a captivating read until the end. While Lang's discipline is English, the stories and lessons he shares can easily apply to any discipline, including science and engineering (just substitute "research" for "writing" or "Freshman Calculus" with "Freshman Composition"). Furthermore, for PhD students who are now contemplating that "What next?" question, the book offers an engaging look at what faculty life is like at a liberal arts college that emphasizes teaching over research. If this is even remotely on the radar screen of career choices, *Life* will be well-worth the read. On the other hand, for a new junior faculty member who has already made that career decision, *Life* may prove to be a comforting read- validating the notion that other new faculty really are going through the same fears, stresses, and anxieties of teaching and research. And, at the very least, it is short enough and entertaining enough to squeeze in while finishing up that dissertation or grant proposal! ■

Why I Became a Professor At Georgia Tech

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The academic profession offers the opportunity to work with and shape the minds of talented students as well as pursue cutting edge-research which can impact a broad scientific and engineering community. It offers great flexibility in the freedom to choose your research topics and develop strong research programs or you can focus on education and teaching, which can be very rewarding, personally. So why choose to teach at Georgia Tech when these things can be accomplished in many institutions? For me, the answer lies in the resources and cultural environment at Georgia Tech which allows many talented people in academia to develop into world class leaders in their field. This is something that you will not find in every institution.

My path to my current position at Georgia Tech is one that is not commonly found here. I was enrolled as a graduate student in the Woodruff School of Mechanical Engineering from 1993-1999 and received both my MS and Ph.D. degrees from Georgia Tech. My experience at Georgia Tech was great and prepared me to take on a wide variety of challenges that I would face later in my career. After graduation in 1999, I accepted a position as a Senior Member of the Technical Staff at Sandia National Laboratories in Livermore, CA. During the four years that I spent at Sandia, I was able to work on exciting projects like developing thin-film coatings for optics used in next generation nanolithography equipment as well as developing an experimental research program in microscale heat transfer. This latter work was applied to the development of microelectromechanical systems (MEMS), for which Sandia is recognized as a national leader. Thus, I found myself surrounded with good financial support, very interesting research projects, and was given the freedom to collaborate and interact with universities while at Sandia. I can say that it was my interaction with Prof. Ken Goodson of Stanford University which sparked my desire to return to an academic environment. I found that the intellectual challenges and creative energy which are found in top universities are very stimulating and cannot be easily found in other career settings. After more than a year of interaction and collaboration with universities, I decided to leave Sandia National Laborates and pursue a full-time academic position of my own.

In the end, I chose to come to Georgia Tech because of the excellent students I would have a chance to work with, the great resources, and the environment which fosters success. I have been able to develop strong collaborations with colleagues in the School of Electrical and Computer Engineering, Chemical and Biomolecular Engineering, and Chemistry and Biochemistry. Georgia Tech truly encourages interdisciplinary research and collaborations which is something that I have been able to take advantage of, leading to a number of exciting developments in my research group. In all, I have been impressed with the students I interact with, have had a great time teaching, and love the freedom to pursue innovative solutions to research problems. I am looking forward to the many opportunities that I will have to learn, grow and explore while here at Georgia Tech. ■

Why I Became an Educator at Georgia Tech

by Dana Hartley, PhD
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As I see it, there are two necessary precursors to becoming an Educator.

1) A passion for something.
2) A desire to help others find their passion.

The path to the first can be different for everyone. Some people seem to be born with a fascination for trains or an obsession for dismantling appliances, but most, including mine own, are discovered through trial and error. However, without exploration, there is no discovery. And, I have found that many students are not aware of how to make use of that exploration.

My own story shows why I am so passionate about guiding students to get not only the classes they need to focus their interest, but also the internships and research experience to define their careers, their goals - their passion.

I started college (too many years ago) as a pre-med. However, these plans slowly dissolved over my first two years at UCLA as I developed a passion for chemistry – an embarrassing, terribly nerdy adoration of the quantum world. I also finally came to terms with the dizzy spells I had over the sight of blood – a rather annoying quality for a MD.

So, being committed to the world of science I began doing research internships. My first two summers of college I worked on DNA mutations. Interesting work, but I had an issue with the vial of monkey AIDS virus in our lab. Apparently, my risk tolerance is low.

So, I decided to venture and do research with other faculty. I began to do research with a professor who did theoretical quantum chemistry work. There I calculated the bond angle on some random molecule…

I became determined to find something more exciting to do with my "passion" in chemistry. So, with my dizziness over blood and low tolerance of risk, it is no surprise that I promptly signed up for an internship with the Los Angeles County Sheriff's Forensic Lab. I went to murder scenes, sat through seminars on the latest execution methods of local gangs, and studied the identification of fibers.

Suddenly my quantum reveries seemed very irrelevant. After going through a litany of options (police officer, social activist…), I realized I wanted to apply my "passion" in chemistry to a useful problem. This all led me to pursue my doctorate in Atmospheric

Chemistry at MIT. There I studied problems in Global Change and Ozone Depletion, and continued those here as a professor the School of Earth and Atmospheric Sciences.

But it was clear that many students did not know how to make the most of opportunities available to them. Whether it is choosing classes, finding

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internships, doing research, and/or other involvements, students wanted and needed guidance. I quickly found that it was through academic advising that I could guide students to find and achieve their goals.

So, now as Director of Undergraduate Academic Advising, I have the opportunity to make sure that this guidance is available to all undergraduates on campus as they go about the discovery of their passion. ■

On Why I Became And Continue To Be An Educator

by Mostafa Ammar, PhD
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It all started when I was five years old…

I always dreaded stories that start this way but in this case it is true!

My father was a university professor and I have strong childhood memories of me visiting him at work, sitting in on some of his lectures and watching him grade exam papers. I, naturally, grew up thinking that this career path is something I should really consider. However, as I finished my Master's degree in 1980 I was still not sure that I really wanted to become an academic. I decided that rather than go on with my PhD, I would go and see what the real-world is like. I subsequently spent two years working in an industrial research lab. During that time, things became clearer. I developed a passion for data communications and networking, and I began to see the attractions of an academic career. With Yogi Berra's words echoing in my head, "If you come to a fork in the road, take it," I decided to leave a comfortable full-time job in which I was being reasonably successful to go back to school full-time.

As I was approaching the completion of my PhD degree, I focused exclusively on looking for an academic job. Much as I would like to pretend otherwise, this was not based on the fact that I knew for sure that I would like an academic job more than the industrial lab job that I had before. Rather, it was clear that an academic job had its attractions; I had tried the industrial lab job already, so why not give an academic job a try. I arrived at Georgia Tech in August 1985 and the rest, as they say, is history.

I recently completed my 20th year at Georgia Tech. So, as one might safely guess, what started as a tentative "Try it, you might like it" decision eventually became a much more solid conviction in the strong merits of an academic career. Over time, I have managed to articulate three reasons why an academic career is like no other. First, the job gives you the chance to be your own boss from day one. In institutions like Georgia Tech, there are significant mentoring resources for a new faculty member. One, however, is rarely told what to do. Second, there is immense satisfaction in doing the job right. Comments from current or former students about how they enjoyed my classes or found the material useful in their work often "make my day". A faculty member also derives satisfaction from research impact and mentoring of graduate students. I have had 21 students complete their PhDs under my supervision. Some have gone on to become faculty members with their own PhD students. What other job can give you the ability to have such human impact? Third, and just as important a distinguishing feature of academic careers, is the fact that one is constantly working with young people who, miraculously, don't get any older as the years go by! You cannot help but stay young (at heart at least) in such an environment. Others, before me, have unsuccessfully looked for the fountain of youth. I have found it in an academic career! ■

Why I Became An Educator At Georgia Tech: The Prequel

by Barry Bozeman, PhD
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Let us start at the beginning - not easy to do with a circle. My academic career began at Georgia Tech. After only two years here, and chiefly owing to successive years of zero percent raises (thank you very much Gov. James Earl Carter), I decamped for the big bucks of the University of Missouri, where I stayed but briefly. From there I moved to Maxwell School of Public Affairs, Syracuse University, where I taught for nearly fifteen years. In 1993, it seemed time to do something new *and* old. I returned to Georgia Tech and became the first full-time chair of the new School of Public Policy.

Rather than describe each twist and turn of what seems to me a very long career, I thought it would be more fun, if perhaps no more instructive, for me to talk briefly about the job travails and choices of that first placement or, as I think of it, "Georgia Tech: The Prequel." Let me apologize if my flip commentary offends, but I find it impossible to describe my early academic career with a straight face.

In that spirit, please return with me to that ancient time, a time shrouded in mystery, a period shortly after the invention of fire and still well before the invention of the Ivan Allen College. The time is 1973. It is only one year after five men, led by former CIA operatives James McCord and future right wing talk radio celebrity G. Gordon Liddy, were arrested for breaking into the Democratic National Committee headquarters at the Watergate hotel and office complex. Their purpose, as we now know, was to install a listening device that they could obtain invaluable insights into the incredibly clever political strategies of the McGovern campaign. 1973 is the year that Richard Nixon first refers to the "third rate burglary," but also the year during which his White House staff is decimated by Watergate-induced resignations. It is the year that Nixon, an ardent Washington Redskins fan, endures the 'skins losing to the Miami Dolphins in the Super Bowl. In 1973, Marlon Brando stuffs cotton in his mouth to play Vito Corleone, Picasso dies, the cost of a first-class stamp increases to eight cents, and I receive my PhD.

As a 26-year old, newly minted (I love that term because it is so little apropos to any academic calling) PhD in political science, I was in 1973 facing one of the first truly dismal post-War job markets. My PhD was earned from The Ohio State University, where I was one of more than 150 doctoral students, in what I can only hope was the largest program in the nation.

Only a few of the dozens who graduated in my cohort managed to obtain academic jobs. Many of our 1973 graduates found important jobs in, shall we say, institutions of less-than-higher-learning. These employers included, among others, the Warren County (Michigan) Office of Probation, the Ohio

Bureau of Motor Vehicles and every branch of the U.S. military then benefiting from the draft. Many of these non-academic jobs were quite challenging and some (even those west of Pleiku-Qui Nhon axis) were physically challenging. One of my good friends in the graduate program was a political theorist, a specialist in Hericlitus, the Greek philosopher best known for teaching that wisdom does not flow from simply obtaining information. A true disciple or Hericlitus, my friend obtained a job in south Ohio working in a pest control firm. His new specialty was trapping rattlesnakes. (I can only surmise that my friend's employers felt his encounters with the OSU political science faculty provided relevant training.)

So, my friend got a cool pair of hip-high boots and a daily adrenalin rush, but I did okay myself. I got a job at Georgia Tech. I was an Assistant Professor of Political Science in what was then known as the Department of Social Sciences. I came the same time as another beginning assistant professor, Bob McMath (who retired last year as Georgia Tech Vice-Provost). We twenty or so political scientists, historians, sociologists and philosophers (not to mention one lapsed physicist, Fred Rossini) comprised a "service department." This means that we had no majors and that most of us were occupied teaching massive sections of then-required American Government courses or Introduction to History. What attracted me to the job? Perhaps the reader suspects that the answer is "a regular paycheck and no required commerce with venomous reptiles?" Well, this is only part of the answer.

We should note that my placement in the Georgia Tech of 1973 was not viewed in my OSU political science department as the plum placement. However, it was certainly *among* the top three academic placements that year. I am confident of this because there were only two others, one at the University of New Orleans and the other at the University of Missouri at St. Louis. (Now it is time for a parenthetical, note of moral instruction to any woe begotten doctoral students entering depressed markets from low-demand disciplines. Question: What is it that we three gainfully employed beginning assistant professors had in common? Answer: (1) At least four

"My dissertation chair advised me against going to Georgia Tech. I can still hear his words of counsel: 'My God, it is not even a political science department! And you already have a chance to interview at Upper Iowa College and at Sangamon State. What are you thinking!' In retrospect, In can see that truer words were never spoken. If only I had listened. By this time I might have advanced to full professor at UIC . . ."

research articles published or accepted in major, refereed journals [so, get busy]; (2) a great deal of teaching experience [stay busy]; (3) a high number in the lottery for the military draft [hope for withdrawal from Iraq]; and (4) a well cultivated resilience in lowering our job standards far below the levels with which we began [abandon all hope ye who enter here]).

My dissertation chair advised me against going to Georgia Tech. I can still hear his words of counsel: "My god, it is not even a political science department! And you already have a chance to interview at Upper Iowa College and at Sangamon State. What are you thinking!"

In retrospect, I can see that truer words were never spoken. If only I had listened. By this time I might have advanced to full professor at UIC, perhaps contemplating my retirement from that university nestled as it is in the rapturous environs of Cedar Falls (which happened to be my advisor's hometown). Instead, I headed to the southern United States which (at least in my advisor's mind) was adjacent to the wilds of Borneo and included daily tussles with wild critters as I endeavored to make my way to work where I would seek, almost surely in vain, to bring civilization to the great unwashed.

As it turns out, my advisor was not entirely correct in his assessment and, having been born in Birmingham, latitude quite close to Atlanta, I thought, even at the time, that his judgment was perhaps a bit dire. However, it is true that the Atlanta of 1973 had no Thai restaurants and Georgia Tech had no Public Policy majors. Now we have more than 100 of each. Verily, we are better for it.

Other than the significant improvement embodied in the School of Public Policy, how is today's Georgia Tech different? That is a tale for another time. For now, suffice to say that in one respect my advisor was correct. "You'll never get out of that place!" And here I am. ■

Fall 2005 Events

Faculty Development Seminars

September 22	**The "PASS THE BOOK" CLUB discusses Ken Bain's WHAT THE BEST COLLEGE TEACHERS DO**
October 20	**Promoting Classroom Civility**
November 17	**Enhancing Teaching Throughout the Faculty Career**

Upcoming Events

March 13-14	**GTREET (Georgia Tech Retreat Exploring Effective Teaching)**
March	**Celebrating Teaching Day (Date to be determined)**

For more information on these and other events, please visit the CETL website at www.cetl.gatech.edu and click on News and Events.

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