Georgia Institute of Technology
Office of the Provost and Vice President for Academic Affairs

March 30, 2005

Dr. Dorothy Zinsmeister
Senior Associate for Academic Affairs
Board of Regents of the University of Georgia
270 Washington Street, SW
Atlanta, Georgia 30334

RE: Nomination of 'The Mathematics Teaching Assistant Development Program' for the FY05 Regents' Teaching Excellence Award – Department/Program Division

Dear Dorothy:

It is my pleasure to nominate the Mathematics Teaching Assistant Development Seminar for the 2005 Regents' Teaching Excellence Award in the Department/Program Division. This training course is a wonderful example of a grassroots effort that has grown and developed into a model program.

In 1995, the School of Mathematics took the initiative to hire a specialist to help their international teaching assistants. While this improved these students' communication and classroom skills, it still left a large proportion of the School's many TAs without a training or support program. In 2000, two instructors developed a training program for all new mathematics teaching assistants. The School has supported this effort with resources and faculty support. While centered on a one-semester seminar for new teaching assistants, this program provides much more than just classroom content – the students are supported and assessed throughout the first term of their appointment. In addition, all international students who wish to be a teaching assistant must show evidence of satisfactory English skills or take at least two courses of ESL for Math TAs.

As you are well aware, all Georgia Tech students must achieve a fairly high level of mathematical competence. This leads to many students being required to take several calculus and other mathematics courses. The School of Mathematics has chosen to use a lecture and recitation format that allows faculty to provide the content to large lectures while teaching assistants (both undergraduate and graduate) are responsible for recitation sessions where problems are solved and the course content is reviewed. These TAs also do a large amount of grading and hold individual office hours. The effectiveness of the TAs is critical to the undergraduate students' success in their mathematical education.

The evidence provided in this nomination packet strongly indicates that the TA Development Seminar program is fulfilling its mission. The TAs are receiving excellent ratings on the institute course/instructor opinion survey, students of the TAs are affirming their effectiveness, and the faculty in the School of Mathematics are pleased with the performance of their teaching assistants. It is difficult to make direct comparisons with courses from before

Office of the Provost and Vice President for Academic Affairs
Georgia Institute of Technology
Atlanta, Georgia 30332-0325 U.S.A.
PHONE 404·385·2700
FAX 404·894·1277

the implementation of this program due to the timing of semester conversion, however these indirect measures indicate that we would expect to see increased student learning since its inception. Moreover, this program satisfies another goal of the role of the teaching assistant. That is, it has increased the likelihood that they are gaining useful experience and knowledge through their positions as TAs, improving their later experiences in the classroom and in their careers.

This program is often held up as a model on campus and is being used as the template for a new course that will be offered through the Center for the Enhancement of Teaching and Learning for all new undergraduate TAs on campus. A similar course is being designed for graduate TAs across campus as well.

In closing, Georgia Tech is very proud of the Mathematics Teaching Assistant Development Program. Across the nation, research universities are struggling with the best way to teach math to their undergraduates in an economical but educationally valuable manner. The School of Mathematics has found a method that is working.

Sincerely,

Jean-Lou Chameau
Provost and Vice President for Academic Affairs

DL/jsh

Mathematics Teaching Assistant Development Program

School of Mathematics, Georgia Institute of Technology
Rena Brakebill, Klara Grodzinsky, and Cathy Jacobson

Every term at Georgia Tech, approximately seventy percent of Freshman and Sophomore undergraduates are enrolled in one of our core required mathematics courses. Most of these mathematics courses are taught in the lecture-recitation format where students attend a large lecture class taught by a lead instructor three times a week, and a smaller recitation section led by a teaching assistant (TA) twice a week. The School of Mathematics employs a large number of TAs to instruct these undergraduates. Most teach recitation sections, while some of the more experienced graduate TAs are selected as lead instructors.

Mathematics teaching assistants come from a wide range of backgrounds: undergraduates from various majors, graduate students in mathematics, and graduate students from other departments. We also employ a mixture of international and domestic students. Previous training for TAs in the department was devised in a piecemeal fashion, with efforts directed toward the most pressing needs, especially the language fluency of the international students. In the fall of 1995, the School of Mathematics instituted a program that would help international graduate teaching assistants (ITAs) improve their oral English as well as learn how to teach in American-style classrooms.

These initial efforts still left a large group of TAs without our targeted support. In particular, the department had no central training in place for non-international first-time teaching assistants. We were putting them into the classroom without giving them the proper tools. We found that they needed mentoring throughout the term as they experienced the calendar of teaching for the first time, and that we needed a more cohesive approach to TA training. For all these reasons, we began the **TA Development Seminar** in the fall of 2000 to provide uniform training to all entering teaching assistants. The School now requires all new undergraduate and graduate TAs, regardless of their previous teaching experience, to attend the following: a School of Mathematics TA orientation session held before the term begins, an institute-wide TA orientation which is led by the Center for the Enhancement of Teaching and Learning (CETL), and a Mathematics Teaching Assistant Development Seminar of eight to ten sessions throughout the term.

A two week introductory workshop for the new international graduate students preceeds the School's regular orientation for all math TAs. During the workshop, there is extensive individual language placement testing. Instruction is focused on expanded listening and speaking in academic settings, and each ITA has a volunteer conversation partner with whom they practice English bi-weekly. Topics include practice mini-lessons, surviving the first week of teaching, and an introduction to math faculty and their various specialties. Except for those exempted during the placement phase, all new ITAs are required to participate in the workshop and in the two semester oral communication program which follows.

In the fall, participants in the English language program attend a weekly three hour class, **Aural-Oral English Skills for Math International Teaching Assistants**. Each participant also has two individual and/or small-group meetings with the instructor. Participants use audiotapes, texts, workbooks, and videotape recordings of classroom presentations. All instruction emphasizes those areas of speech that can interfere with classroom success, such as stress, rhythm, intonation, and phonetics. The goals of this phase include developing the ITAs' abilities to understand the informal spoken English of their undergraduate students as well as to begin to self-monitor and correct their own speech.

By the second term, if they have mastered the tools presented in the previous class, they are ready to work on applying them to their speech in real time situations. This is the focus of the spring weekly two hour class, **Academic Communication for Math ITAs with Intermediate/Advanced ESL**. Each ITA meets individually or in a small group with the instuctor on a weekly basis for help with his/her specific pronunciation issues. Planning for continuing improvement is emphasized. All ITAs also meet together for a one hour per week lecture/demonstration/discussion session. Cross-cultural questions are discussed and students are encouraged to contribute to the greater mathematical community by serving as proctors and graders in the annual School of Mathematics High School Math Competition.

No ITA is given classroom duties until his/her English is satisfactory. Throughout the program, all participants are assessed on intelligibility, comfort and confidence in a classroom setting, and the ability to self-monitor and correct. Once an ITA begins teaching, s/he is frequently videotaped and observed. The ITA reviews these videotapes and the results of live observations with the School's language specialist. Some participants make sufficient progress to be exited from the program after one term. For those few who do not make sufficient progress to exit the program at the end of the second semester, assignments other than classroom teaching are made, and additional tutorials are available.

The eight to ten session **TA Development Seminar** provides all new TAs with information, guidance and support from faculty and peers, developes professional attitudes, and improves classroom management skills. In addition, the seminar serves as a support network through which the TAs can learn about the various campus resources available to them as teachers, and enables them to give back to the community by helping to plan and host the High School Math Competition, a major recruitment tool for Georgia Tech.

In addition, our undergraduate TA selection process is highly competitive. In order to apply for a TA position, the applicant must show his/her math skills by successfully solving a math problem set, and be individually interviewed and videotaped teaching a mock recitation session. We invite engineering, science, and computer science juniors and seniors with a GPA of 3.6 or higher to apply for the positions. All of our TAs have completed the calculus sequence, and most have taken quite a few additional math courses as well.

Our training strategies for both the Orientation and the Seminar include small group discussions, video viewings, speakers, role-playing exercises and case studies. (The School of Mathematics funded our attendence to a faculty workshop on using case studies at an AMS meeting in the fall of 2003.) We discuss basic chalkboard methods, professional behavior, academic integrity and the honor code, sexual harassment, student diversity, grading techniques, tips on dealing with problem situations, different teaching styles, viewpoints on "what is a good TA," midterm evaluations, and time management. Speakers have included invited guests from the Dean of Students office and CETL, various professors from the School of Mathematics, returning TAs, and others who speak about sexual harassment and WebCT courses. All TAs are provided with a TA Handbook which documents departmental and campus-wide policies, and includes excerpts from TA training books. We also maintain a WebCT page for the training seminar, allowing the TAs to share information electronically. The case studies were added to the program in the spring of 2003 to prepare our graduate students to be ready to teach independently as lead instructors, and upon graduation, as professors.

We strongly believe in constant mentoring during the first term of teaching. Every new TA is videotaped in his or her recitation class. One of the Seminar instructors views the videotape with the TA and provides an evaluation with suggestions for improvement. (The videotapes also help us address and respond to any complaints that may pertain to our TAs.) In addition, we require all the TAs (new and returning) to be evaluated by their students at the midterm. The TAs then meet in course-specific small

groups to discuss the students' perceptions and possible mid-course corrections. At the end of the term, each TA is evaluated by both the lead instructor and the on-line student opinion survey conducted by CETL. We continue to monitor our undergraduate TAs in their second semester of teaching by requiring them to attend seleccted seminars. Finally, we have also matched some graduate TAs who have not yet taught with an experienced TA mentor. The new TA observes the mentor's classes and culminates his/her training by teaching one or two classes and receiving feedback from the mentor.

At the conclusion of the term, the TAs that successfully meet the Seminar criteria are awarded a certificate of completion, and, if undergraduates, are granted one credit hour. We also offer to write letters of recommendation for those who have completed the Seminar. Our undergraduate TAs enjoy the TA experience and find it to be a strong component of their undergraduate experience. In addition, we encourage the TAs who have completed our training program to further their teaching skills by attending CETL training sessions and receiving CETL certification.

One TA from the School of Mathematics is nominated each year for the CETL/BP Outstanding Teaching Assistant Award. Our last recipient of the award was a participant in the Seminar. Our undergraduate TAs have been accepted to graduate schools such as MIT, Princeton, UC Berkeley, University of Illinois-Urbana, and Columbia. Several of our undergraduate TAs have either received, or have been named as candidates for, scholarship programs such as the Rhodes, Gates, Cambridge, and Marshall Scholars. Our ITAs have gone on to work as faculty or postdocs at American and Canadian universities such as Cornell, Purdue, Lehigh, Ohio State University, University of Wisconsin-Green Bay, University of Massachusettes-Amherst, University of British Columbia, and University of Toronto.

The School of Mathematics faculty has become very involved in the TA Development Seminar. Several faculty members have volunteered to be guest speakers or small group moderators. Also, faculty members constantly share ideas for improvement, and suggest additional topics they would like to see covered in the Seminar. When the School of Mathematics was considered for the National Science Foundation's VIGRE award (Grants for Vertical Integration of Research and Education in the Mathematical Sciences), our TA Development Seminar was presented to the VIGRE site visit team as an exemplary part of the School's concern with teaching quality.

The TA Development Seminar also has campus-wide support. Our TAs have heard speakers from the Dean of Students office, and have been provided with a link to the Georgia Tech registrar's FERPA presentation (Family Educational Rights and Privacy Act of 1974). Visitors from both ECE (Electrical and Computer Engineering) and CETL participated in our Spring 2001 Seminar. During the Spring 2002 semester, the School of Mathematics served as a resource for research proposed by Dr. Judith Norback of ISyE (Industrial and Systems Engineering). She had received a Sloan Officers Grant to pilot a study of "Impacting Undergraduate Education in Science and Technology through Enhancing Communication between Undergraduate Students and International Teaching Assistants," and was interested in the history and development of both the English course and the TA Development Seminar. We collaborated with DramaTech and the Office of Continuing Education on a video project that involved undergraduate students as actors and script-writers. The product, "Three Teaching Styles," is now a part of the seminar.

The ultimate goal of our program is to create skilled, informed, and confident teachers who are proud of their teaching, and whose competent teaching is valued by the School of Mathematics. We hope that our graduate TAs will build upon their teaching experiences as they become the lead instructors of their own classes, and that our undergraduate TAs will be able to use leadership and presentation skills in their careers or in gaining graduate teaching assistantships. Thus, having trained Mathematics Teaching Assistants in our classrooms benefits not only the Georgia Tech undergraduate students and the School of Mathematics faculty, but the Teaching Assistants themselves.

TA Development Program: Fact Sheet

School of Mathematics, Georgia Institute of Technology
Rena Brakebill, Klara Grodzinsky, and Cathy Jacobson

In the Fall 1995, we instituted our international teaching assistant (ITA) training program, which emphasized improving English skills. In the Fall 2000 semester, we started a pilot program for all of our new teaching assistants. Since the Spring 2001 semester, all of our new undergraduate and graduate teaching assistants (TAs) have been required to attend a School of Mathematics orientation session, eight to ten teaching seminars throughout their first teaching semester, and the CETL institute-wide orientation session. All new international TAs must also complete a two-semester English language program, Aural-Oral English Skills for ITAs and Academic Communication for Intermediate/Advanced ESL ITAs.

Our TA Development Seminar deals with teaching and classroom management issues. We invite several professionals from Mathematics and other departments to speak on various topics. The TAs participate in group discussions and in role-playing exercises.

The following are samples of topics presented during the seminars and language programs.

- Professional Behavior and Time Management
- Academic Integrity and the Honor Code
- Proctoring and Grading; FERPA (Family Educational Rights and Privacy Act of 1974)
- Chalkboard Presentation
- Interactive Problem Solving: Eliciting and Responding to Students' Questions
- English Sound System (ITAs); Aural/Oral Communication Strategies
- Comfort and Confidence in a Classroom Setting
- Various Learning/Teaching Styles; Multi-cultural Impact on Student Learning
- Midterm Evaluations

Each new TA is videotaped and/or observed teaching his or her class. One of the seminar instructors views the tape with the TA and gives an evaluation with suggestions. Additionally, all ITAs review their video with the language consultant. At midterm, we also require all TAs to have their students fill out a midterm evaluation questionnaire so that mid-course corrections can be made.

	Graduate TAs					*Undergraduate TAs*		
	Total	**New**	**Math Majors**	**ITAs**	**Lecturers**	**Total**	**New**	**Math Majors**
Fall 2000	48	9	25	39	6	54	39	6
Spring 2001	38	10	33	16	6	40	5	9
Fall 2001	56	9	46	28	10	35	21	10
Spring 2002	44	0	38	27	8	34	3	12
Fall 2002	42	16	39	24	7	47	32	9
Spring 2003	41	1	40	27	5	23	2	7
Fall 2003	51	11	51	26	13	42	18	7
Spring 2004	43	6	43	23	10	28	0	4
Fall 2004	51	8	50	30	9	38	19	8
Spring 2005	41	3	39	24	10	28	2	7

Evidence of Teaching Effectiveness

Every term, Georgia Tech students are given the opportunity to complete an online Course/Instructor Opinion Survey (CIOS) for every course in which they are registered. Courses with multiple instructors have multiple surveys, one for each instructor. In the case of the core math courses, since teaching assistants manage the recitation portion of the course, TAs are listed as secondary instructors. The following data provides a method for getting a basic look at the performance of these teaching assistants.

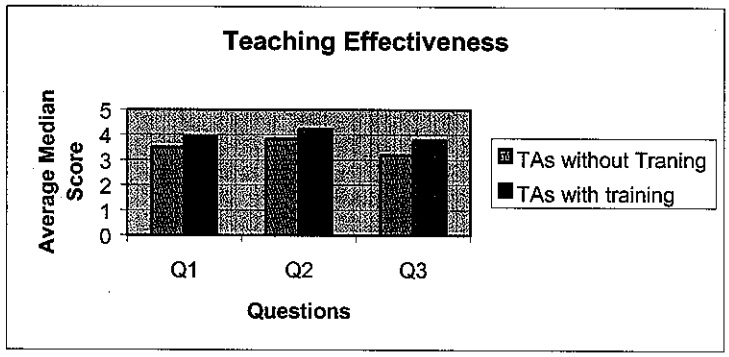
Here we share two pieces of data from this survey instrument.

Looking at all mathematics courses that were offered in Fall 2004 that had a teaching assistant, the students were asked to rate the TAs based on the following three questions/criteria:

Q1: Recitation contributed to learning of material
Q2: Recitation work correlated with lecture content
Q3: Recitation session were well organized

The responses to these questions are five point Likert scales: students were asked to indicate their level of agreement or disagreement with the above statements (5=STRONGLY AGREE, 4=AGREE, 3=PARTLY AGREE AND PARTLY DISAGREE, 2=DISAGREE, 1=STRONGLY DISAGREE).

We present here the average median scores of the responses to these three questions for two populations: teaching assistants who had attended the math TA development program and teaching assistants who did not attend the math TA development program. The chart supports our theory that the TAs with training are more effective teachers than those without training.



The final part of the course/instructor survey is an open-ended comment block. These comments are intended only for the instructor in order for them to receive formative feedback. A request was sent to some TAs to get permission to share some of their comments and they happily agreed. Here is a sample of the comments that these TAs received:

[Name] was very helpful on many occasions. She had many help sessions, and was always approachable in office hours. She simplified many of the complicated things [Prof.] was saying

in class so that we could understand exactly what something was and how to deal with it. I would not have an A in Calc II if it weren't for my TA.

[Name] was the best TA I have had at the institute. If it were not for his patience, hard work, and dedication to our section, I don't think I would pass this class. He took a lot of time to help us and it showed in his teaching (most TA's don't do this). Thank you.

[Name] is the coolest. He is definitely the best TA I've had thus far. He will review what the prof taught, give examples and different approaches, he holds review sessions for the tests and final (something he doesn't have to do)...and even brings us donuts! [Name] should TEACH calculus – he does a very good job, and does it in style!

Great TA, without him I would be failing this course. He is always willing to help and explain, and I actually understand him.

In addition, as previously mentioned in this packet, the TA development seminar requires the TAs to have a midterm evaluation completed by their students. Here are some of the comments taken from these evaluations:

[He] makes concepts and problems easier to understand and always gives reasons for steps-it's never "just because."

He spends the time productively and makes the best use of the time. He does a good distribution of problems and explains things well.

He is encouraging; he realizes that Calculus may not come easily to everyone, so he never belittles students if they don't understand right away.

She encourages us and gives us confidence. She explains well and makes sure we know what we are doing.

[He] has very deep understanding of materials taught. [He] describes everything in an easy-to-understand manner.

We would like to share some quotes by mathematics faculty, a senior administrator, and TAs about the program.

The TA Development Seminar was mentioned in the VIGRE Site Visit report to the School of Mathematics from the NSF committee consisting of mathematics faculty from three universities. The following is taken from the report.

A teacher training seminar has been started recently for graduate and undergraduate teaching assistants. This training program has a good reputation among students and is coveted by older graduate students who did not receive it. Teaching training and language skills enhancement has long been in place for foreign graduate students.

Dean Karen Boyd, Senior Associate Dean of Students, has spoken to our TAs about academic integrity. Here are her comments on the program:

Over the years, I have worked with many academic departments on responding to academic integrity and with training Teaching Assistants. At Tech, working with teaching assistants is

even more important given the presence of undergraduates in the ranks. The Mathematics Department program is one of the most comprehensive and the only significantly proactive program that I have seen. These faculty members prepare TAs for the challenges they will face in the classroom by taking the time to explore the issues and carefully explain all relevant procedures and rationale supporting the procedures. The Mathematics Department's TA training program goes further than most by preparing students to be leaders in the educational pursuit.

Dr. Jean Bellissard, Professor of Mathematics and Physics and the Senior Member of the Institut Universitaire de France, took an accelerated version of the Aural-Oral English Skills class. Here are his comments about his experience in Cathy Jacobson's class.

The efficiency of the method relies upon emphasizing the importance of English word stress and sentence rhythm, and the change of tone in sentences that are quite different in English pronunciation as compared to other languages. Since the end of my training, in Spring 2004, nobody asks me to repeat what I say when I am talking anywhere, in contrast with my previous experience. In addition, the class for regular students also has some training in teaching and in speaking in public. From what I can see, this program is very helpful for the graduate students coming from abroad who must integrate their teaching skills into the American system. I can only wish this program could be extended to all faculty of foreign origin. Because I am also appointed in the School of Physics, I can see all the student benefits that the Math TA Development program brings in comparison to Schools where it does not exist.

Stephen J. Young, a graduate TA who attended the seminar in Fall 2003 wrote the following about the Midterm Nuts and Bolts Questionnaire.

The Midterm Nuts and Bolts Questionnaire is a two part questionnaire; the first part consists of baseline questions to establish the students level of involvement in the class, i.e. how often they attend the recitation and lecture, how much of the homework they are doing, have they used outside tutoring resource, etc, and open ended questions evaluating the strengths of the TA and possible areas of improvement, the second portion consists of several multiple choice questions regarding the basis 'nuts and bolts' of teaching, like pacing, board handwriting, enunciation and grammar, etc. The benefits of receiving the student comments through this questionnaire is two fold. The first benefit comes from the "nuts and bolts" feedback on the basic classroom experience. Through this feedback the TA gains insight on simple means of improving the recitation experience, which cannot be provided from a single observation of the classroom by a professor. The second benefit stems from the open ended critique by the students and the discussion of those critiques during the TA Development Seminar.

Puja Zalavadia, a recent engineering graduate and a former undergraduate TA wrote:

The School of Mathematics makes an excellent effort to assure that their teaching assistants perform to the best of their abilities and they are provided with all the help and guidance to do so. I was a teaching assistant in the College of Computing as well as the School of Electrical and Computer Engineering prior to joining the School of Mathematics, and no other department had a program quite like this in place to help the new teaching assistants. I have always enjoyed tutoring, and this program helped me better communicate with my students. After graduation, I have continued tutoring some students in mathematics.

Georgia Institute of Technology

School of Mathematics
Atlanta, GA 30332-0160 U.S.A.
PHONE 404-894-2700
FAX 404-894-4409

March 25, 2005

Dr. Jean-Lou Chameau, Provost
Provost/VP Academic Affairs
Carnegie Building
Campus 0325

Dear Dr. Chameau:

I am pleased to write in strong support of the nomination of the School of Mathematics' Teaching Assistant Seminar for the Board of Regents' Teaching Excellence Award. Here at Georgia Tech, mathematics plays a foundational role for *every* undergraduate student - since *every* major requires calculus. In fact, almost all students take an extended sequence of core mathematics courses, including advanced calculus, linear algebra and differential equations.

Some years ago, mathematics requirements were viewed by students and faculty alike as hurdles, and making it past the considerable challenges seemed more like a "rite of passage." Students who survived the experience talked about mathematics like soldiers recalling boot camp.

The environment is quite different today. In the 21st century, mathematics needs to be an empowering subject - one that stimulates and promotes academic success, opening doors rather than closing them. Nevertheless, mathematics remains a serious subject. It is rigorous and demanding, and we cannot lower standards just to curry favor. Instead, the faculty of the School of Mathematics seeks to instill in every Georgia Tech student an appreciation for mathematical thinking and clear consistent reasoning. At the same time, our courses are substantive, and they give Georgia Tech students the solid foundation that academic and career success requires.

The teaching of mathematics has also changed dramatically over the years, reflecting diversity in the student population and the changing demands of the workplace. Students come to Georgia Tech with strong potential for academic success, yet they have significant differences in the level of preparation; and they respond in markedly different ways to particular pedagogical approaches. It is no longer possible to expect all students to perform optimally in a learning environment with a single focus, regardless of how well-designed and how well-intended that focus might be.

At all large public universities, resource constraints require that some fraction of the instructional burden be carried by Teaching Assistants; so many departments, mathematics among them, are challenged to recruit and train advanced level students to assist in the instruction of introductory level students.

Under the dedicated leadership of Rena Brakebill, Klara Grodzinsky and Cathy Jacobson, the School of Mathematics program has developed an exemplary program to train Teaching Assistants, and the program has led to significant improvements in the quality of teaching of Freshman and Sophomore mathematics courses at Georgia Tech. The TA Development Seminar helps TA's to develop and improve their teaching techniques and understand School and Institute policies related to their instructional responsibilities. Using a skillfully designed mix of group discussions, video viewings, outside speakers, practice sessions, web communications and many, many hours of one-on-one mentoring, Rena, Klara and Cathy help TA's (both graduate and undergraduate) to develop a deeper understanding of the complexities of the undergraduate academic and social culture, as well as the special capabilities, goals and ambitions of the students who enroll at Georgia Tech. Our TA's are led to understand (1) how students learn; (2) how technology can be effectively coupled with traditional methods; and (3) how teaching methods and grading practices can serve to foster (or impede) student progress. They also learn about the evolving traditions in human interactions between students and instructors in American universities.

I strongly believe the Teaching Assistant Development Program in the School of Mathematics is commensurate with the level of excellence the USG Teaching Award is intended to recognize and award. Furthermore, I must also believe that our program is uniquely distinguished by the breadth of its impact across the Georgia Tech campus.

Sincerely,

William T. Trotter, Chair
School of Mathematics

WTT:cw

Georgia Institute of Technology

School of Mathematics
Atlanta, GA 30332-0160 U.S.A.
PHONE 404-894-2700
FAX 404-894-4409

March 28, 2005

Dr. Jean-Lou Chameau
Provost/VP for Academic Affairs
CAMPUS 0325

Dear Dr. Chameau:

The Mathematics Teaching Assistant Development Seminar is part of a training program that had its genesis in the School's 1995 initiative for international teaching assistants. Conducted by Mrs. Cathy Jacobson, this effort was designed to help the international assistants polish their command of English and to help them acclimate to teaching in an American university. Since international students are unfamiliar with many things about the American classroom, it became clear that this program should discuss classroom management, testing, grading, privacy laws, and a wide variety of other such matters. In August, 2002 we inaugurated a week-long International Teaching Assistant Workshop for the new international GTAs in advance of the Fall Semester. At this event Cathy Jacobson is able to assess the linguistic needs of the students and their readiness for the American classroom. She works with them intensively to improve their language and teaching skills, and incidentally helps them with the myriad details they need to live here, such as arranging for Social Security cards and details connected with transportation and housing.

We now require all our new assistants to attend the TA Seminar, which it is particularly valuable to the internationals, who see it both as a way to improve their teaching practice and as professional development. Thus non-native speakers are able to practice pronunciation, stress, rhythm, and all the technical aspects of learning professional English in a specialized setting which is both motivating and reinforcing. The impact upon Georgia Tech undergraduates is immediate, and the effects of the training continue as our doctoral graduates take up teaching positions elsewhere, often at universities in the United States and Canada. Since English is the language of most international research gatherings, the facility at presentation acquired from this program is of value to all our graduates. We very much hope that this training program will continue to serve this dual purpose.

The International Teaching Assistant Workshop was a great success when first offered. The participants have almost uniformly reported that it was invaluable to them, and this feeling has translated into action as they have enthusiastically volunteered their help for the succeeding summers, and have aided graduate recruitment with their positive reports to prospective future about how well they are taken care of at Georgia Tech.

The School of Mathematics has created a model for the entire University System in the use and development of international GTAs, and Cathy Jacobson has played the preeminent rôle in this effort. Both through the Workshop and the Teaching Development Seminar, she has helped fine-tune the teaching responsibilities and skills of the international GTAs, to the great benefit of the undergraduates they teach. I enthusiastically endorse recognizing Cathy Jacobson's superlative and innovative contributions to teaching at Georgia Tech.

Sincerely yours

E. M. Harrell

Evans M. Harrell
Associate Chair for Graduate Studies and Reserarch

March 21, 2005

Dr. Jean-Lou Chameau, Provost
Vice President for Academic Affairs
Carnegie Building
CAMPUS 0325

Dear Dr. Jean-Lou Chameau,

Math was my forte in high school; it was what I knew and what I loved. In the few short summer months between high school and college this fact did not change, and so I entered Tech with the desire to pursue a degree in mathematics. This naturally involved taking math courses of some sort, and so I registered for Honors Calculus II and a special topics course, Problem Solving in Mathematics. The difference between these college level math classes and my high school math classes was twofold. First, they were much more intriguing, fascinating, captivating, enthralling. Everyone in these classes was in them because they loved math, and the professors recognized this and tailored the classes to satiate the students' math hunger. The caveat to this, and the second difference between these classes and the high school classes, was that the more intriguing the material became, the more difficult it became as well. Enter the Teaching Assistant, stage right. My special topics course did not have a TA, but my calculus course did, and my calculus TA proved integral to my learning of the course's material.

Miles Stoudenmire was my Calculus II TA, and even on the rainiest days he was energetic when teaching recitation. I remember right before one class his bike had been stolen, yet he grinned when he told the class the situation and immediately continued to clarify our concept of calculus. In the face of what was often daunting and intimidating math, having someone who was so optimistic and willing to help really made the "Calculus II Experience" superb. Miles' task was especially difficult since this was an honors class, but he passed the ordeal with flying colors. I cannot really imagine what the class would have been like without recitation and Miles there to lead it; the material was quite frequently quite confusing, and having someone there to slowly explain the material and help the class review and retain the information proved absolutely invaluable.

After Calculus II, I returned for a second semester at Tech to take another math class, Calculus III. Like my Calculus II class, I have a TA for Calculus III. And like before, this TA is supremely helpful in teaching the course's material. Nguyen Truong is my TA for this class, and right off the bat he proved himself to be a fantastic TA by taking personal interest in each and every student. Even before the first recitation began, all of his students received an e-mail from him giving personal information about his studies and interests and inquiring into our lives and passions. This true interest in the students continued in class when he set out to learn the name of every student, which is quite a feat considering our recitation size of 80 students. (I believe two recitation sections were placed together.) Beyond this personal level that makes learning the material easier, Nguyen also realizes that many of the students in recitation may already be familiar with the material that is being reviewed that day, so for each class he provides a fun problem of the day to make sure that nobody's mind goes un-matched. His firm grasp on the material and patience with the class has made our comprehension of calculus a breeze.

By building up the TAs to be so great I don't mean to impugn the professors' abilities; my professors have been absolutely wonderful. Without our recitation TAs, however, the classes would have much more impersonal and difficult. In both classes, the recitations would have been nothing without such wonderful TAs. On a similar note, the students would have been lost without the existence of recitation. The nature of review and smaller class size and more personal level of instruction that this provides truly made the classes more enjoyable and more manageable.

Needless to say, I am an advocate of recitations and TAs and strongly support their continuation and growth here at Georgia Tech. In fact, I hope to be a calculus TA in the fall! I can only hope that I can leave as good an impression on my students as my TAs have left on me.

Sincerely,
Adam Tart

Atlanta, GA, March 27th, 2005

Dr. Jean-Lou Chameau, Provost
Vice President for Academic Affairs
Carnegie Building
CAMPUS-0325

Dear Dr. Chameau,

A few days ago I learned that the School of Mathematics' TA Development Program had been nominated for the Georgia Board of Regents award. I would like to dedicate a few lines to tell you how much this program has done for me as a teaching assistant in the School of Mathematics and as member of the Georgia Tech community.

When I came to Georgia Tech the seminar for first-year international graduate teaching assistants had already been working for several years. Primarily, the seminar focused on improving our English and teaching skills. Our group of new international graduate students met twice a week with our Language Consultant, Ms Cathy Jacobson, to work intensely on perfecting our understanding and using of the English language. Among the materials we were given there was a dictionary, audio cassettes and grammar textbooks. We had weekly homework assignments and one-to-one meetings with Ms Jacobson who not only worked hard to make our experience with the English language a valuable and enjoyable one, she also had the challenging task to get to know each one of us. She transformed our demanding job as teaching assistants into a personal experience of growth in a multi-cultural environment. She made it easier and fun.

With the passing of the years and the evident success of the seminar for international students, it became clear that a similar seminar was necessary for all teaching assistants, undergraduate and graduate, either international or not. In Fall of 2003, I had the opportunity to work for the TA Development Seminar, which ran independently of the seminar for international graduate students. The TA Development Seminar was run with unparalleled organization, dedication and enthusiasm by Ms. Klara Grodzinsky and Ms. Rena Brakebill. All the new teaching assistants met once a week during the Fall semester to discuss diverse topics such as learning styles, diversity in the classroom, tolerance, sexual harassment and academic misconduct and how to deal with them, academic integrity, grading, how to prepare for recitation, effective use of the board during class. These are just a few examples. In many occasions speakers were brought to talk about these topics, among them, I remember the valuable talks given by Dean Boyd, Dr. Green (Math) and Dr. Kennington (Success Programs). As an experienced TA I also had the opportunity to talk to the new TA's so they would have a different point of view from someone who had already been in their same situation. We learned from each other about ourselves. New TA's were videotaped twice during the semester, later on they watched their videos together with either Ms. Grodzinsky or myself and received feedback about how to improve their recitations. There is much I would like to say about the TA Development Program in the School of Mathematics. Let me just add that it is more than a program with a vision toward enhancing the educational experience in Mathematics; its philosophy reaches beyond the walls of our school through its TA's, who carry the sense of innovation and the ideals of responsibility, commitment and excellence that the Program nurtured them with.

Yours truly,

Jorge Viveros
Graduate student, PhD, Math.

March 17, 2005

Dr. Jean-Lou Chameau, Provost
Provost/VP Academic Affairs
Carnegie Building
Georgia Institute of Technology
Atlanta, GA 30332-0325

Dear Dr. Chameau,

It is my pleasure to write this letter of support for the TA Development Program initiated by the School of Mathematics. I am a first year graduate student in Mathematics. After earning my master's degree in China, I was admitted by the School of Mathematics and came here to pursue Ph.D. degree. I have been part of the TA Development Program for two semesters. The ESL(English as a Second Language) class, hosted by Ms. Cathy Jacobson, which is a part of the program, helps me greatly improving my speaking and listening English. To be honest, when I first came here my English was very poor, but now I feel much better and there is not any difficulty in communicating with English speakers.

This semester I begin to teach Differential Equations in two classes. It's my first time to give a recitation in English. When I pursued my master's degree in China I was also a TA and I taught Calculus and Differential Equations for two years. I accumulated some teaching experience during that time, so before the first recitation class here I was quite confident. However, I broke into a sweat after that class because I found too many differences between the classes in China and here such as interacting with students and creating original materials before class. The TA seminar helps me to realize the differences and makes me adjust to the environment here. I learned many communication, interactive and organizational skills from the seminars. The program makes me feel comfortable in class. Using my previous and new experience, I can explain difficult problems in a simple way and the students like to attend my recitation, in fact, they enjoy it. I never thought teaching was interesting stuff before but now I am enjoying it.

I am very grateful to be a TA in the School of Mathematics. It has helped me to orient my future career. I really appreciate it.

Best regards,

Kun Zhao
School of Mathematics
Georgia Institute of Technology
Atlanta, GA 30332-0160
kzhao@math.gatech.edu

Christina McGough
1755 College Drive #228
Baton Rouge, LA 70808
cmcgou1@lsu.edu

March 13, 2005

Dr. Jean-Lou Chameau, Provost
Provost/VP Academic Affairs
Carnegie Building
Georgia Institute of Technology
Atlanta, GA 30332-0325

Dear Dr. Chameau,

I am writing to express my support for the TA Development Program initiated by the Department of Mathematics. As an undergraduate, I was part of this program for three semesters, but my experiences during that greatly affected my future. After graduating from Georgia Tech with a degree in Physics, I continued on to graduate school at Louisiana State University. During my first two years of graduate school, I was asked to TA a number of introductory courses. My supervisors here were immediately impressed with my teaching ability, no doubt due to my training at Georgia Tech. I was given greater responsibilities my second year. When the faculty member in charge of Astronomy Labs left the department unexpectedly, I was asked to supervise the lab TAs and coordinate the undergraduate Astronomy Labs. I later helped teach a 4000 level advanced observing course for Physics/Astrophysics majors. The experience I received as a Math TA at Georgia Tech, as well as the training that program provided, has helped me become a successful and sought after TA while in graduate school.

The opportunity to teach such bright and motivated students such as the ones at Georgia Tech is rare and inspiring. Now that I have completed my Masters Degree in Physics, I find myself interested in pursuing more teaching opportunities. Currently, I am planning to take two years off of graduate school, before going back for my PhD, to teach at the advanced high school level. Before teaching at Georgia Tech, I was never even considering teaching as a career. Now I find myself thinking about my classroom experiences at Georgia Tech and wanting to feel so useful again. Even now, when I visit Atlanta, I run into former students who express their thanks for all of my help.

The TA Development Program deserves to be recognized by the Board of Regents for all of the outstanding TAs it has produced. This program not only serves the thousands of students who receive help from their TAs, but also provides countless benefits to the TAs themselves.

Regards,

Christina McGough

Small Business Services

112 Krog Street, Suite 17
Atlanta GA, 30307
(404) 873-0470, ext. 31

March 28, 2005

Dr. Jean-Lou Chameau, Provost
Provost/VP Academic Affairs
Carnegie Building
Georgia Institute of Technology
Atlanta GA 30332-0325

Dear Dr. Jean-Lou Chameau:

I graduated from Georgia Tech in December 2004 and I was privileged to work for the mathematics department as an undergraduate teaching assistant. For three semesters, I taught Calculus II and Linear Algebra and I enjoyed it immensely! One of the programs that helped me the most was the Mathematics Teaching Assistant Development Program.

The Mathematics Teaching Assistant Development Program at Georgia Tech was a wonderful program for preparing me to teach and mentor Georgia Tech mathematics students. Among the many ways the Development Program helped, there are four that stand out in particular.

1. The Development Program prepared TAs for the unexpected challenges they faced when instructing a large group of students. For instance, during one of our weekly sessions, six seasoned TAs visited the seminar and they held a Q&A with the new TAs. The seasoned TAs gave a heads up on what to expect from students. They addressed issues like how to keep students from talking in class, how to deal with difficult questions, and how to proctor a test. And all of these issues were addressed from a TA's point of view!

2. The Development Program provided a list of contacts for problematic situations. If a student showed suicidal tendencies, we would know who to contact and how to deal with that situation. The Dean of Students visited one of our weekly seminars and spoke in detail about contacting the appropriate personal and the procedures for referring a student. Perhaps more common, if we were to catch someone cheating or another student suspected one of his classmates of cheating, we would know how to deal with the problem. The contact list was very useful and it allowed the TAs to divert potentially stressful and problematic situations to the right people.

3. At least twice during the program, the TAs would meet with the instructors and address teaching style and course material. The instructors were very helpful. They would give a quick overview of the course and explain what they expected from their students. Also, they would give the TAs a heads up on the difficulty level of the tests. From these sessions, I was able to prepare my students better for their tests and help them be successful in the course.

4. The Development Program frequently asked for feedback from the TAs. Every semester they would adjust the program according to the suggestions made by previous participants. At one point in the programs past, a few students suggested that a video be made that showcased different teaching styles. As a result, the Development Program created a video that did just that.

The Mathematics Teaching Assistant Development Program is very responsive to the TAs. The program ensures that all of the TAs' needs are met and it provides a solid source of contacts to help the TAs do their very best. Through the program, I formed strong bonds with many of the lead instructors. I felt comfortable going to any of these instructors for help or advice. Everyone was very friendly and I still keep in touch with many of the people I met through the program.

The Mathematics Teaching Assistant Development Program not only prepared me for being a teaching assistant, it provided me with a valuable skill set that I continue to use to this day.

Sincerely,

Jonathan Page
Start It Right! Success Series Coordinator
Small Business Services

CORNELL

Department of Mathematics
Cornell University
Malott Hall
Ithaca, NY 14853-4201

Telephone: 607 255-4013
Fax: 607 255-7149
E-mail: math@math.cornell.edu

Kasso A. Okoudjou
H. C. Wang Assistant Professor
Tel: (607) 255-7244

March 18, 2005

Dr. Jean-Lou Chameau, Provost
Provost/VP Academic Affairs
Carnegie Building, Campus 0325
Georgia Tech, Atlanta, GA 30332

Dear Dr. Chameau,

I am writing to support the School of Mathematics' TA Development Program for the 2005 Regents' Teaching Excellence Award.

During the academic year 1998-1999, I was admitted in the Ph.D program at the School of Mathematics at Georgia Tech, where I was also offered a Graduate Teaching Assistant position. Coming, from a French-speaking country (Benin, West-Africa), I was a little apprehensive at the idea of having to teach in a new environment, and moreover in a language that I was not very fluent in speaking. However, all my concerns were put to rest the first day I arrived at the Math department, where a strong program designed to help international graduate teaching assistants like myself, has been in place for sometime. Thereafter, I had the opportunity to participate in a year long series of seminars, lead by Ms. Cathy Jacobson. The seminars were designed to prepare us for our TA's duties by enhancing our English skills, as well as by familiarizing us with American classroom. In particular, the TA Development Program designed by the School of Math, comprised a meeting with all the International TA's working for the School, during which different teaching situations are discussed. We also have one-on-one meeting with Ms. Jacobson, where the focus is more on individual issues of the TA. The videotaping of our recitation as well as the classroom visits by the Seminar organizers, and the discussions that usually follow help me greatly improving my teaching skills. Moreover, the School soon realized that the Program should be opened to all TA working within the School. Since then, all Math TAs are required to participate in the seminar, which has two main components nowadays: the TA training seminar attended by all Math TAs, and the International TA English course designed to assist non-native English speaker with improving their oral and written expressions.

I strongly believe that this series of seminars has made me a better teacher. Indeed, I have had some very strong teaching reviews from all the courses that I taught at Georgia Tech, as well as those I have been teaching at Cornell University since graduating from Georgia Tech. While I believe that I have some natural teaching aptitudes, I also believe strongly that the TA Development Program at Georgia Tech's School of Math, has enhanced greatly my teaching skills. Therefore, and without any reservations and in the strongest terms, I support the Nomination of of the School of Mathematics' TA Development Program for the 2005 Regents' Excellence Award.

Yours sincerely,

Kasso A. Okoudjou