Application Summary

Competition Details

Competition Title:	2019 Eichholtz Faculty Teaching Award
Category:	Institutional Awards - CTL
Award Cycle:	2019
Submission Deadline:	02/01/2019 at 6:00 PM

Application Information

Submitted By:	Lea Marzo
Appplication ID:	2941
Application Title:	Plamen Iliev
Date Submitted:	01/24/2019 at 5:21 PM

Personal Details

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Primary School or Department

School of Mathematics

Primary Appointment Title:	Asst. to the Chair II

Application Details

Proposal Title

Plamen Iliev

Georgia Institute of Technology

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December 11, 2018.

Nomination for Plamen Iliev for Geoffrey G. Eichholz Faculty Teaching Award

Dear Dr. Weinsheimer, and Members of the Selection Committee,
It is a privilege to write a letter of support for Professor Plamen Iliev, for the Geoffrey G. Eichholz Faculty Teaching Award. I recall that several years ago, when I was undergraduate coordinator, I heard many unsolicited comments from both graduate and undergraduate students in the School of Mathematics about his peerless teaching. Several students noted his ability to anticipate students' questions even as they were trying to formulate them. Plamen is so well prepared that he can present a flawless entire lecture without having any notes. In my years at Tech, I know of only two people in the School of Math who do not bring any notes to class, and have outstanding teaching records, one of them being Plamen Iliev.

Plamen has taught an extraordinarily wide range of undergraduate courses, to large classes. These include Calculus I (Math 1501) to over 220 students in one semester, Calculus II (Math1502) to 240 students, Calculus III (Math2401) to 313 students, Differential Equations (Math2403) to 395 students, and Introduction to Multivariable Calculus (Math2550) to 258 students. In addition, he has taught Abstract Vector Spaces , (Math2406), Applied Combinatorics (Math3012), Probability and Statistics (Math3215), Linear Algebra (Math4305), Real Analysis I and II (Math4317 and Math4318), Complex Analysis (Math4320), and Classical Mathematical Methods in Engineering (Math4581). He has taught almost every core undergraduate course in the School of Mathematics, quite apart from his wide range of graduate courses. He has also supervised several REU's (research experience for undergraduates), and his service in our graduate Comprehensive Exams, and on numerous committees. As someone who was lucky to receive the Eichholz Award on the basis of teaching mainly Calculus II, I feel humbled by his ability to teach so well and so consistently in such a wide array of courses.

Plamen's dedication to innovative teaching led him to participate as a CETL Hesburgh Teaching fellow in 2010, and he implemented some of the ideas in Calculus III. Nor is he an "easy" lecturer. Student comments in his evaluations refer to his high standards and challenging exams. Here are some comments taken from his evaluations. I focus primarily on undergraduate core courses, noting that his ratings for graduate courses are still higher:

Applied Combinatorics (Math3012) Fall 2003

"Dr. Iliev is an excellent professor and a much welcomed addition to Tech. I learned a great deal in his course. His teaching style and course structure is ideal for a mathematics course".

He was rated **4.2/5.0** under the heading "Instructor was an Effective Teacher".

Calculus II (Math1502) Fall 2004:

"This is the most I've learned in a mathematics class ever. Best math teacher I've ever had. So many concepts came together to make sense. The exams and quizzes are very fair and all material is covered in both theoretical and computational aspects. 10 thumbs up".

He was rated **4.3/5.0** under the heading "Instructor was an Effective Teacher".

Calculus III (Math2401) Fall 2012

"He was a completely amazing teacher in lecture. I never read the book ahead of class or did the homework before he lectured, but I still understood everything that he covered. The examples, facts that he often referred back to past knowledge and the posted current theorems on the projector really helped with absorbing new information."

He was rated **4.8/5.0** under the heading "Instructor was an Effective Teacher"

Calculus III (Math2401) Summer 2013

"His method of teaching! Highly active and knowledgeable. He drew graphs which really stimulated my interest in the subject. If I could have him as a teacher for all my courses, it would be great."

He was rated **4.5/5.0** under the heading "Instructor was an Effective Teacher"

Differential Equations (Math2403) Fall 2013

"I greatly enjoyed this course and think it will be very useful in future applications. Prof. Iliev is a fantastic teacher."

He was rated **4.83/5.0** under the heading "Instructor was an Effective Teacher"

Differential Equations (Math2403) Summer 2014

"Easily the best professor (in a lecture style in class) that I have ever had, in any subject matter. If given the opportunity to have another class with him, I would do so without hesitation."

He was rated **4.8/5.0** under the heading "Instructor: Overall Effectiveness"

Probability and Statistics (Math3215) Fall 2015

"Dr. Iliev was an excellent lecturer. He always made his expectations clear, and always announced what he planned to teach us next. He clearly explained topics and answered questions thoroughly. He cared very much about whether or not students learned material. He lectured so well that even non-math majors could understand him and succeed in the class. He knows the material extremely well. He is also very approachable and welcoming and lets students know when his office hours are open".

He was rated **4.7/5.0** under the heading "Instructor: Overall Effectiveness"

Complex Analysis (Math4320) Fall 2016

"The instructor overall just knows his stuff forward and backward. Any question you could

possibly have he had a direct answer for it and explains it extremely well. The structure of this course is also great as I have taken him for two other classes before. It makes learning more fluid."

He was rated **4.9/5.0** under the heading "Instructor: Overall Effectiveness"

Introduction to Multivariable Calculus (Math2550) Spring 2018, H3

"He was very funny and kind and made the class interesting. He communicated well with students and was always very open about what we needed to know and understand. He explained the topics very well."

"Genuinely cared about the material and the students"

He was rated **4.9/5.0** under the heading "Instructor: Overall Effectiveness"

Introduction to Multivariable Calculus (Math2550) Spring 2018, E4

"An amazing lecturer. Comes into class with no notes, and somehow memorizes or completely improvises extremely relevant examples. Makes concepts extremely clear, and explains concepts very well. I always leave class with a clear understanding of what I just learned."

He was rated **4.8/5.0** under the heading "Instructor: Overall Effectiveness"

2017 School of Maths Interview of Iban Ariza, graduating discrete math student

http://www.math.gatech.edu/hg/item/599226

"I consider a class to be impactful if I ended up enjoying the subject more than when I started taking it. Among the classes I enjoyed more in the end are probability and statistics taught by Professor Plamen Iliev."

For so many years of consistently excellent and dedicated teaching, Plamen Iliev clearly deserves the Eichholz Award.

Sincerely,

Prof. Doron Lubinsky (School of Maths, Georgia Institute of Technology)

Teaching Reflection

Dear Eichholz Faculty Teaching Award Selection Committee,

It is an honor to be nominated for the award. I would like to use this opportunity to express my gratitude to my colleagues in the School of Mathematics, CETL and all of my students in Georgia Tech for their advice and constant support!

I came to Georgia Tech in 2003. During the last 15.5 years I have had the opportunity to teach 18 different courses in mathematics at all possible levels: from Calculus I-II for freshmen to more advanced undergraduate and graduate classes. I served multiple times, and I am currently serving, on both the Undergraduate and the Graduate Committees at the School of Mathematics. It has been a wonderful and rewarding experience. My objectives for each class have always been the same:

1. ensure that the students leave the classroom with solid knowledge of the material;
2. show the students the beauty and importance of mathematics;
3. help and support them in their future endeavors.

However, each class presented a new teaching challenge with different students, from different backgrounds, with different interests and goals. Thus, I have gradually started to use different strategies in my teaching, some of which are outlined below.

Academic Success for Freshmen. One of the first classes almost all students take at Georgia Tech is either Calculus I or Calculus II. Both present several challenges to the instructors due to the fact that many freshmen have difficulties adapting to the new environment and the learning process. Moreover, most of the students have their main interests outside the field of mathematics, and for this reason, they sometimes seek shortcuts, trying to memorize prescribed algorithms as opposed to understanding the theory and the concepts behind them. What I have found, however, is that while some do initially struggle with the meaning of the basic definitions and theorems, all they really need is time, support and encouragement. We are privileged to have bright students who can go beyond formal manipulations and it is our duty to stimulate their interest and intellectual growth. I plan my lectures so that the students can see both the theoretical as well as the practical side of the material. I supplement the lectures with numerous exercises for both parts. Thus, by the end of the semester, most students build strong knowledge and intuition of the basic concepts, which help and guide them in more advanced classes.

Use of technology. While a blackboard is usually sufficient for almost all math classes, technology can still be very useful to illustrate different aspects of the material. A typical example is Calculus III which takes the students to a new adventure – computations involving three-dimensional geometric objects. My first Calculus III class coincided with my Hesburgh Teaching Fellowship in CETL in 2010. As a project inspired by these discussions, I prepared slides containing the main facts and numerous 3D pictures produced with Mathematica for all lectures in my Calculus III classes. These pictures not only facilitated the visualization of surfaces and solids in the space for many students, but also helped in the understanding of

some of the important constructions. For instance, using Mathematica, it easy to display similarly looking solids defined by very different equations. This naturally brings the question of characterization and canonical forms of 3D quadratic surfaces, by relating these to the notion of eigenvalues and eigenvectors from Calculus II.

Supporting the students outside the classroom. In many lower level classes, we have to move quickly in order to cover all essential topics needed for the future courses. This means that the students have to work very hard outside the classroom to absorb the material and practice the techniques they have seen in lectures. For students who work well independently, this is not an issue, but for some, the regular recitations are hardly enough. This is particularly important for large classes where it is practically impossible to meet with all students during office hours. In the Spring and Fall semesters of 2018, I taught the 2-credit large classes "Introduction to Multivariable Calculus" (Math 2550). With only one recitation per week, the students had very few opportunities to solve problems in small groups. I thought this would make the class extremely difficult for students who struggle with Calculus. In the Spring semester, I asked whether the Center for Academic Success can help with PLUS sessions to supplement the lectures and recitations. I was very pleased that they acted very quickly and added PLUS sessions in the following semester. I believe we should do everything possible to help our students inside and outside the classroom.

Connection to research. I always try to connect the material covered in class with open research problems. For instance, in the Differential Equations class (Math 2552), I briefly explain Hilbert's 16th problem, which concerns the determination of an upper bound for the number of limit cycles in two-dimensional polynomial vector fields (and which is still unsolved after more than 100 years of active research!). This illustrates how some of the relatively simple notions we discuss in class are related to deep and important questions. I believe the discussion of current research problems is exciting, stimulating, and should be an inseparable part of our teaching duties. It also shows the students that not everything is in the books. Reading between the lines and asking ``What else is interesting?'' is what leads us to discover new phenomena.

Research Experiences for Undergraduates. For many of the core undergraduate classes making a direct link to current research problems is not easy and requires some planning and preparation. In this respect, I find the REU program to be a natural extension of the undergraduate courses and a useful bridge to close the gap between teaching and research. I have enjoyed the opportunity to continue the discussions with several students outside the classroom in REU projects. This not only further inspires the students and prepares them for graduate school, but often leads to new interesting directions in research and publications. For instance, the last project with the undergraduate student Vladimir Grantcharov on solvable Lie algebras constructed from graphs grew into a research paper which was published in *Journal of Algebra*, a leading international journal and publishes papers that demonstrate high quality research results in algebra. It is rewarding to see our former students continuing with graduate studies and making new discoveries every day.

COURSES TAUGHT AT GEORGIA TECH (2003 – 2018)

1. Math 1501 - Calculus I
2. Math 1502 - Calculus II
3. Math 2550 - Introduction to Multivariable Calculus
4. Math 2551 - Multivariable Calculus
5. Math 2552 - Differential Equations
6. Math 2406 - Abstract Vector Spaces
7. Math 3012 - Applied Combinatorics
8. Math 3215 - Introduction to Probability and Statistics
9. Math 4305 - Topics in Linear Algebra
10. Math 4317 - Analysis I
11. Math 4318 - Analysis II
12. Math 4320 - Complex Analysis
13. Math 4581 - Classical Mathematical Methods in Engineering
14. Math 6021 - Topology of Euclidean Spaces
15. Math 6321 - Complex Analysis
16. Math 6337 - Real Analysis I
17. Math 6338 - Real Analysis II
18. Math 6580 - Introduction to Hilbert Spaces

Reading courses:

- Introduction to Lie algebras
- Solvable Lie algebras and graphs
- Introduction to Riemann surfaces
- Hypergeometric functions
- Wavelets

Courses taught at Georgia Tech

Semester	Class	Size
Fall 2018	Math 2550: Introduction to Multivariable Calculus	158 students
Summer 2018	Math 2551: Multivariable Calculus (GT Lorraine, France)	34 students
Summer 2018	Math 2552: Differential Equations (GT Lorraine, France)	45 students
Spring 2018	Math 2550: Introduction to Multivariable Calculus	258 students
Fall 2017	Math 3215: Introduction to Probability and Statistics	51 students
Fall 2016	Math 4320: Complex Analysis	26 students
Spring 2016	Math 3215: Introduction to Probability and Statistics	60 students
Spring 2016	Math 6321: Complex Analysis	10 students
Fall 2015	Math 3215: Introduction to Probability and Statistics	48 students
Spring 2015	Math 6338: Real Analysis II	16 students
Fall 2014	Math 6337: Real Analysis I	28 students
Fall 2014	Math 6580: Introduction to Hilbert Spaces	12 students
Summer 2014	Math 8900: Introduction to Riemann surfaces	2 students
Summer 2014	Math 2403: Differential Equations	60 students
Spring 2014	Math 6321: Complex Analysis	21 students
Fall 2013	Math 2403: Differential Equations	395 students
Spring 2013	Math 6338: Real Analysis II	15 students
Fall 2012	Math 6337: Real Analysis I	28 students
Fall 2012	Math 2401: Calculus III	161 students
Spring 2012	Math 2403: Differential Equations	103 students
Spring 2012	Math 4090: Solvable Lie algebras and graphs	1 student
Fall 2011	Math 2401: Calculus III	313 students
Summer 2011	Math 4699: Introduction to Lie algebras	1 student
Spring 2011	Math 2401: Calculus III	75 students
Spring 2010	Math 4317: Analysis I	33 students
Spring 2010	Math 4320: Complex Analysis	35 students
Fall 2009	Math 2406: Abstract Vector Spaces	22 students
Summer 2009	Math 4581: Classical Math. Methods in Eng.	72 students
Spring 2009	Math 6337: Real Analysis I	18 students
Fall 2008	Math 1501: Calculus I	281 students
Spring 2008	Math 4581: Classical Math. Methods in Eng.	40 students
Fall 2007	Math 1501: Calculus I	222 students
Spring 2007	Math 4320: Complex Analysis	36 students
Fall 2006	Math 1501: Calculus I	211 students
Fall 2006	Math 4317: Analysis I	19 students
Summer 2006	Math 6021: Topology of Euclidean Spaces	23 students
Spring 2006	Math 6021: Topology of Euclidean Spaces	7 students
Fall 2005	Math 1501: Calculus I	180 students
Fall 2005	Math 4318: Analysis II	15 students
Spring 2005	Math 4317: Analysis I	38 students
Fall 2004	Math 1502: Calculus II	240 students
Spring 2004	Math 4305: Topics in Linear Algebra	38 students
Fall 2003	Math 3012: Applied Combinatorics	34 students

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January 25, 2019

Dear Eichholz Award Selection Committee:

I am very happy to nominate my colleague, Professor Plamen Iliev, for the Geoffrey G. Eichholz Faculty Teaching Award. Since Fall 2003, Prof. Iliev has taught courses at all levels (from large lecture service courses to core graduate courses). Since most students on campus take these types of courses (in particular, the calculus sequence which Prof. Iliev taught repeatedly),
through his teaching Prof. Iliev has had a broad impact on our undergrads, as well as core training for graduate students from many disciplines.

Prof. Iliev's effectiveness and excellence in teaching is documented by the School's DOTE. I am sharing a brief summary here. Prof. Iliev has taught over 3000 students since joining Georgia Tech, with 2462 at the 1000-2000 level. He teaches a variety of courses covering mathematics at different levels that are critical to our students in both science and engineering. His average CIOS scores are excellent, and feedback from his students show that Plamen is not only an excellent educator, but also deeply engaged with his students and their success in learning.

Comments and emails from students provide further evidence that Dr. Ilieve cares about his students, has high expectation of his students, and is a very effective and engaging teacher.

I give my strongest recommendation for this award, as I believe that Dr. Plamen Iliev is among our most influential and outstanding educators at Georgia Tech.

Sincerely,

Rachel G. Kuske

Rachel Kuske
Professor and Chair
School of Mathematics

Georgia Institute of Technology

Igor Belegradek
School of Mathematics
Georgia Institute of Technology
Atlanta, GA 30332-0160
ib@math.gatech.edu

January 22th, 2019

Dear Members of the Selection Committee,

I am writing to you as the Director of Teaching Effectiveness to support the nomination of Prof. Plamen Iliev for Geoffrey G. Eichholz Faculty Teaching Award.

Since coming to Georgia Tech in 2003 Prof. Iliev has taught over 3000 students (2462 students on 1000-2000 level, 545 students on 3000-4000 level, and 169 students above 6000 level).

The core undergraduate courses taught by Prof. Iliev include calculus at all levels, differential equations, linear algebra, probability and statistics, mathematical methods in engineering, various flavors of analysis, and applied combinatorics. The variety of these courses is most impressive.

Prof. Iliev's CIOS scores are excellent. His average score on effectiveness (based on records that start in 2009) is 4.25/5 at the undergraduate level (871 responses from 2159 students) and 4.83/5 at the graduate level (59 responses from 125 students).

Prof. Iliev has received numerous "Thank a Teacher" certificates, and was a Hesburgh Award Teaching Fellow in 2010. Below are excerpt from his teaching evaluations in 2018 when he taught 416 students in MATH 2550 (Introduction to Multivariable Calculus):

Great class, everything was clear and direct – excited to apply this material in the future!

Prof. Iliev is very approachable and genuinely cares about our progress and growth!

The instructor was funny and humorous and often cracked jokes while teaching.

Teaching style is efficient and straightforward for students to understand.

Probably the best math professor I've ever had.

I think the professor was fantastic. Period.

Really cares about the students!

Dr. Iliev goes at a patient rate so that everybody can follow comfortably, but not too slow to the point where you get bored. He also cracks pretty funny jokes here or there.

His genuine care for all of us inspired me to work harder.

Very open and available to help students understand the material. He is very understanding and helps students succeed at learning the important concepts of calculus, not memorizing formulas.

Great lecturer, always early for class drawing diagrams before lecture started.

Very funny guy who showed a great deal of concern for his students. Wanted them to get as much out of the class as they could.

Incredibly clear lectures, balanced definitions and examples very well.

Best math teacher I've ever had, extremely clear in presenting information and would explain almost every step. Very clear in explanations, and has a lot of respect for students.

The examples used in class were extensive and super interesting.

Very well spoken, gives plethora of examples, has the perfect amount of dry humor.

Genuinely cared about the material and the students.

We always went over proofs in class, so everything we were doing made sense and was entirely verifiable.

Seriously the best math teacher I've ever had, wish I could take every math course with him.

It is my opinion that Prof. Iliev is one of the best math teachers at Georgia Tech and I enthusiastically support his nomination.

Sincerely yours,

Igor Belegradek

Professor and Director of Teaching Effectiveness

January 18, 2019

Subject: Letter of support for Dr. Plamen Iliev for the Georgia Tech Geoffrey G. Eichholz Faculty Teaching Award

Dear Selection Committee,

My name is Shashwati Claudina da Cunha, and I am a 2nd year Chemical and Biomolecular Engineering student at Georgia Tech. I am writing this letter in support of the nomination of Professor Plamen Iliev for the Georgia Tech Geoffrey G. Eichholz Faculty Teaching Award.

I took Dr. Iliev's Multivariable Calculus class over the summer of 2018 at Georgia Tech Lorraine in France. I spent my weekends traveling Europe and once recklessly planned to return from Vienna at midnight on a Sunday. Through the five connecting trains my friends were taking, one was delayed, leaving us stranded. My only thought was: I have to make it back for Dr. Iliev's class at 10. We barely slept, desperately hunting for alternative routes, and somehow reached our campus at 9 AM. My friends headed straight for bed- and I headed straight to calculus.

That's the magnetic appeal of Dr. Iliev's class. His passion for mathematics is so obvious that it spills over to his students, drawing me into his world of volumes and fluxes. His pace kept me engaged; I spent every class on the edge of my seat. Most importantly, his dynamic teaching really left me thinking. As someone who asks many questions, I greatly appreciated his explanations of the finer details of calculus. When it came to exam solutions as well, Dr. Iliev was always happy to go over any points of uncertainty. Dr. Iliev managed to achieve this clarity in just three months, never compromising on the rigor of the discipline.

Multivariable calculus implies multi-axis calculus- it deals with 3D pictures. Dr. Iliev has a gift for painting this incredibly visual part of math into a narrative, connecting dots along the way. His teaching was consistent and organized, which really helped me to make these connections and link them back to fundamental ideas for myself. Every class pushed us to think a little further from our current understanding. By the end of the semester, I could retrace my journey through multivariable calculus with a logical sequence that made it very accessible. I believe learning is not a conservative function; there are different paths from the starting point to the end of a class, and they aren't equivalent. The path Dr. Iliev led us on was steady and achievable, while challenging me to think deeper. The tools he gave us are now part of the way I see engineering problems, because his teaching really gave me the opportunity to absorb them. When I first looked at a vapor-liquid equilibrium line, I immediately wondered how to characterize it in 3D space, because my perspective on math has been permanently shaped by taking MATH 2551.

Months after my MATH 2551 course was over, it was Dr. Iliev I turned to when I was struggling to understand more calculus theory. In my mind, he will always be the professor who made the leap from flat space to vibrant three-dimensionality. I wholeheartedly support his recognition via this award.

Yours,

Shashwati Claudina da Cunha

January 16, 2019

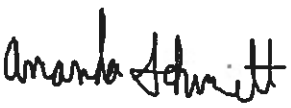
Dear Selection Committee,

I am very glad to have the opportunity to recommend Plamen Iliev, my Math 2550 professor, for the Eichholz Faculty Teaching Award. As a former student of his, I am confident that he deserves this award in recognition of not only his superb teaching skills but also his genuine concern and respect for his students.

In the beginning of the Fall 2018 semester, I was nervous about starting multivariable calculus. It had been almost three years since I had taken a calculus course, and I feared I would not be able to keep up. After a week in Professor Iliev's class, those fears were gone. Though the course material is not easy, Professor Illiev takes difficult topics and presents them in an intuitive manner. No matter the complexity, he breaks things down into manageable examples and builds on our foundations of calculus and linear algebra. Often, teachers assume that their students know either much more or much less than they actually do. When learning complicated math, neither of these teaching styles is helpful. Professor Iliev, however, knows exactly how to explain things, simultaneously challenging his students and guiding them towards a deeper understanding. When students in lecture did have trouble, he expertly fielded their questions. Always going a step further, he would take time to do the same example in many different ways.

It was clear from the beginning of the semester that he wanted everyone to succeed and would do everything in his power to make that happen. His enthusiasm for the course and concern for his students was evident with every question he answered and every minute he spent outside of class to help. After each class, he would stay to answer questions and help individual students come up with study strategies. Every time he taught something new, Professor Iliev became as excited about it as if he were seeing it for the first time. This contagious enthusiasm made it hard not to appreciate the nuances of multivariable calculus that he presented. Anyone could recognize Plamen Iliev's love for math, but all his students recognize his love and talent for teaching it.

Sincerely,



Amanda Schmitt

Georgia Institute of Technology

11 January, 2019

Dear sir,

I am writing this letter to express my support for Professor Plamen Iliev for the Eichholz Faculty Teaching Award. I have been a Georgia Tech student for 4 semesters now, and Prof. Iliev has easily been one of my favorite and most effective teachers in the mathematics department. I was a student in his multivariable calculus class my second semester, which was enough for me to really appreciate his teaching style.

For most of my experiences learning mathematics, including at Georgia Tech, the material tends to grow dry or downright confusing as a class progresses. Prof. Iliev avoided both of these pitfalls. He knew which parts of the curriculum required gradual progression from simple to complex examples to best explain the content, and when he should explain concepts more rapidly to get us up to speed. He also found ways to inject his own sense of humor into the class and engage his students so lectures never felt one-sided. Most of all, he gave extremely clear visuals to illustrate how abstract concepts could exist in the physical world, which is especially important for multivariable calculus as it introduces the 3-dimensional plane.

Overall, Professor Plamen Iliev was a standout for me in the mathematics department that facilitated my success in multivariable and beyond. For this, I offer him my full support for the Eichholz Faculty Teaching Award.

Benjamin Holmes

Benjamin Holmes

January 1, 2019

To whom it may concern,

I hope to convey my strong recommendation for Professor Plamen Iliev with regards to the Eichholz Faculty Teaching Award. As a student in Professor Iliev's Introduction to Multivariable Calculus course (MATH 2550) this past fall, I have experienced first hand his qualifications for this award, and I am eager for the opportunity to share with you the positive impact Professor Iliev had on my experience in the course.

As an undergraduate student in the College of Computing, I entered Professor Iliev's class with some anxiety. MATH 2550 would be my final and most difficult calculus course. However, Professor Iliev made it clear from the beginning of the semester that he cared for his students and that he was invested in our success. Professor Iliev worked tirelessly to provide students with the necessary support to learn. Homework assignments were always correlated with lectures, and Professor Iliev went out of his way to pinpoint specific extra practice problems. Whenever I struggled on a topic, I knew that Professor Iliev had a large framework of problems I could rely on the alleviate my confusion. Professor Iliev was also available for frequent office hours, and I always felt comfortable going to him for help, as he frequently advertised and encouraged students to attend these office hours. Professor Iliev excelled in his responsibilities as a teacher, and all his resources aided my learning effectively.

One of the biggest pitfalls I have seen among my other courses is a lack of clarity in communication between the professor and students. Professor Iliev avoided this unfortunate norm completely. Course expectations were always extremely clear, and this is critical to me as a student. Professor Iliev always summarized previous lectures before class began, allowing students to ensure they were understanding key course concepts. He also provided difficult practice problems before exams that were very effective in outlining key notions we were expected to understand. The course had a very calculated design, and Professor Iliev was never nebulous with students with regards to the direction of the course.

Most importantly, Professor Iliev is cognizant of the Georgia Tech community and all the resources it offers. For instance, this past semester he went out of his way to organize the introduction of Peer-Led Organized Study (PLUS) to the MATH 2550 course. PLUS sessions offer an outlet for students to learn beyond the classroom in a collaborative setting, and I personally found them extremely useful for test review purposes. Additionally, my Teaching Assistant (TA) was always aware of the current topics of the course, and it was clear that Professor Iliev understood the large roles TAs played in helping students. As a TA of a different course myself, I am fully aware of the importance of effective communication with the professor in fulfilling my TA responsibilities for students. Overall, Professor Iliev identified and opened effective channels of learning that were beyond interaction with himself.

Professor Iliev's greatest strength was his investment in the students' learning, and this quality made him an indispensable asset to my growth as a student and learner. I believe he embodies the prerequisites for the Eichholz Faculty Teaching Award, and I fully endorse his qualifications for this well-deserved recognition.

Sincerely,

Charles King
Undergraduate Student | College of Computing
Georgia Institute of Technology
cking90@gatech.edu

January 15, 2019

Dr. Joyce Weinsheimer
Director, Center for Teaching and Learning
Georgia Institute of Technology

RE: Letter of Support for Dr. Plamen Iliev's Eichholz Award Nomination

Dear Dr. Weinsheimer:

It is my honor to write this letter in support of Dr. Plamen Iliev's nomination for the Geoffrey G. Eichholz Faculty Teaching Award. My name is Anthony Tan, and I am a second-year Computer Science student. I had the privilege of enrolling in Dr. Iliev's Introduction to Multivariable Calculus course in the fall semester of 2018, during which I became very familiar with the exceptional techniques that he applies in his teaching to facilitate and enhance student learning.

During class, Dr. Iliev delivers engaging lectures that effectively promote understanding of the material by relating new topics to our prior knowledge and breaking down complex theories into manageable portions that can be more easily understood. After explaining a concept, Dr. Iliev presents example problems of progressing difficulty and interactively demonstrates the steps to solve them, showing us the practical applications of new concepts while encouraging student participation in the classroom at the same time. Throughout class, Dr. Iliev pays close attention to his students; whenever there are any signs of confusion, he always pauses to make sure that any questions are resolved before continuing, which shows his dedication to student success.

Outside of class, Dr. Iliev provides many resources to facilitate learning and support his students. Dr. Iliev dedicates many hours each week to answering student questions, both by encouraging students to attend very consistently scheduled office hours and by promptly answering emails from students. Further, his innovative strategy of assigning hybrid homework assignments, consisting of mandatory problems from the online e-learning system and optional recommended problems from the textbook, addresses challenges commonly associated with teaching core curriculum, such as the variation of study strategies among students, and the need to balance between ensuring student progress, providing practice opportunities, and maintaining a reasonable student workload. For example, I was able to study efficiently by focusing on the mandatory online problems for most of the topics, and when I found a topic to be especially difficult, I was able to solidify my understanding through the optional recommended questions.

Prior to taking Dr. Iliev's course, I presumed that Introduction to Multivariable Calculus would be a very challenging course that I would have trouble succeeding in. While the course material was indeed difficult, Dr. Iliev's outstanding teaching and supportive approach greatly facilitated my learning, allowed me to grow and become confident in the material, and were one of the most important and determinative factors that helped me to succeed in this challenging course.

It is with great enthusiasm that I support the nomination of Dr. Iliev for the Geoffrey G. Eichholz Faculty Teaching Award. I hope that after reviewing this letter and his excellent teaching record, you will reach the conclusion that Dr. Iliev is both qualified for and deserving of this award.

Please contact me at the email address below if you need any further information.

Yours sincerely,

Anthony Z. Tan
Undergraduate Student, Class of 2021
School of Computer Science
Georgia Institute of Technology

Email: tonytan@gatech.edu

To Whom It May Concern:

I am writing this letter to declare my full support for Dr. Plamen Iliev's nomination for the Fall 2018 Eichholtz Faculty Teaching Award. I took MATH 2551 (Multivariable Calculus) with Dr. Iliev during the Summer of 2018 in Georgia Tech Lorraine. MATH 2551 is a highly dense course, as it not only has to introduce the fundamentals of mathematics in multi-dimensional space, but also has to apply the two dimensional ideas from Differential and Integral Calculus to higher dimensions, while also exploring complex ideas such as Stoke's and Green's theorems. This make MATH 2551 is an incredibly challenging course to teach during the relatively short summer semester.

Yet, Dr. Iliev not only got through the material with relative ease, but he was able to do so with a clarity that made it comprehensible to us students (while even managing to throw in a joke or two every now and then) despite the incredible number of distractions that come with the GTL program. He struck a beautiful balance between theory and computations, and organized his lectures in way that flowed smoothly, and was easy to follow. Every lecture my friends and I were amazed at how his explanation and boardwork were so cohesive despite the fact that he didn't have any pre-prepared notes to read from. All this is even more impressive when you consider that he was also concurrently teaching MATH 2552 (Differential Equations), which is also a 4-credit hour math course, and is not much easier to teach than MATH 2551. Yet, Dr. Iliev not only was able to get through it skillfully, but he did not let the quality of his lectures slip in the slightest.

Apart from this, Dr. Iliev was still incredibly approachable outside the classroom, and cared to establish bonds with his students even beyond the scope of his class. Apart from being enthusiastic to help during office hours, he was highly encouraging to those not doing so well. When I did poorly on one of his midterms, he not only walked me through the examples, but also took time to reassure me that I could still do well in the class and that I should not give up hope. Apart from that, he was happy to make time to go over my final exam with me in the subsequent Fall semester, and has always been more than happy to have a casual chat with me any time our paths happened to cross.

In conclusion, Dr. Iliev has truly set a standard at Georgia Tech, as an instructor, and as a person. His commitment to not only see his students succeed, but to also be a positive impact on our lives, truly sets a standard for all at Georgia Tech, and have made taking his class a highlight of my undergraduate career.

Thank you,

Darshan Senthil
Biomedical Engineering | Class of 2020
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Jessica Pan
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Atlanta, GA 30332
Tel: 954-225-5480
jpan68@gatech.edu

December 30, 2018

Dear Selection Committee,

My name is Jessica Pan and I am majoring in Computer Science. I am thrilled to write this letter to support the nomination of Professor Plamen Iliev for the Eichholz Faculty Teaching Award. In Fall 2018, I took Multivariable Calculus (MATH 2550) with him, and I was very impressed with how he actively interacted with his students both inside and outside of class. I have taken many large classes with lecture-hall style classrooms, which often led to, little to no personal teacher to student interaction. As a result, professors easily overlooked points that students were confused about.

Professor Iliev fantastically overcame this by effectively delivering his lectures as if he was talking to each student. He frequently asked us if we truly understood the material and encouraged us to speak up or call out questions when we had doubts. Done incorrectly, this kind of student input could have easily become a hindrance. However, Professor Iliev integrated our questions and comments into his lecture strikingly well. To our advantage, he transformed them into opportunities for us to clarify and solidify our understanding of tricky material. For any additional questions, Professor Iliev wholeheartedly welcomed us both after class and during office hours, and never hesitated to provide thorough explanations.

In addition to his expertise as a lecturer, Professor Iliev is also passionate about teaching and helping his students. He cares deeply about his students' success and never hesitates to offer his time and support. Professor Iliev reminds me of the spirit of Georgia Tech; he strikes the perfect balance between challenging his students and providing the necessary support so that we can charge head on at those challenges.

I can't think of a better candidate for the Eichholz Faculty Teaching Award, and I have no doubt that Professor Iliev more than fulfills the selection criteria. Over and over again, Professor Iliev is willing to go above and beyond for each of his students and for his class as a whole. He thoroughly prepares for the contents of the subject matter before each class. More importantly, he delivers the course material in an engaging and clear manner so that every student in his class can easily understand. Because of the attention that Professor Iliev takes in discerning his students' level of understanding, and adjusting teaching styles to best suit their

needs, he has created one of my most memorable experiences here at Georgia Tech. He genuinely cares for his students and has made learning mathematics a rewarding and fulfilling experience. For all this and more, it is my delight to recommend Professor Iliev for the Eichholz Faculty Teaching Award.

Sincerely,

Jessica Pan
Candidate for Bachelor of Science in Computer Science ('19)
Georgia Institute of Technology

Eichholz Teaching Award - Letter of Support for Professor Plamen Iliev

Aniruddha Das

Professor Iliev was my Multivariable Calculus (MATH - 2551) professor in Spring 2018. Calculus is a topic that I have always struggled to grasp. A lot of my learning took place through rote where I practiced every problem I could find and memorized the general method to approach the problem. I was aware that this wasn't the most efficient way to study, however, it was the only way I knew, and it worked decently well until then.

Going into Multivariable Calculus, I was worried as my peers told me that this approach would no longer work for MATH - 2551 was one of the most conceptually taxing classes I would take. It required strong foundations in the concepts of Calc I and II to succeed together with the ability to grasp the material conceptually so as to apply it in any question asked. It was impractical for me to solve all possible problems since there were too many questions and it would be unfeasible for me to do so without hurting any other classes I was taking. Moreover, being a computer science major, I was aware that of all the Calc classes, this would be the most important one for me due to its applications in optimization algorithms such as Gradient Descent.

While I mentally prepared myself for the uphill climb that lay ahead, little did I know that thanks to professor Iliev, the task of doing well would not be as insurmountable task as I had thought it would be. While many professors I have had until then simply explained concepts and assigned homework problems, professor Iliev went above and beyond to where he explained the concepts and also solved multiple problems in class. He was also extremely patient and believed the best way to understand the material was to solve questions on it, so he demonstrated answers to questions asked verbally and practically by coming up with problems on the spot and guiding us through the process of solving it.

To maximize time spent on learning material, professor Iliev consistently arrived to class 10 minutes early and began writing down his notes on the board. By the time the class had begun, all the material that would be taught was already on the board in an easily explained format. Professor Iliev then proceeded to explain the material in a time efficient manner and dedicated the remainder of the class to solving additional questions and taking pains to ensure that every student understood the topic of the day.

Professor Iliev was also highly accessible beyond the classroom. He promptly responded to emails regarding any queries I had and was available for office hours so that I could clarify any concepts that I was unable to fully grasp.

In conclusion, Professor Iliev motivated me to work hard and guided me towards a successful understanding of concepts that were difficult to grasp and essential for my success. He was willing to go above and beyond to ensure that I was not held up on a concept with his prompt responses. His tendency to come early to class and ensure that we used the time-slot maximally resulted in us wasting no time and having enough time to read, practice and understand the material. All of Professor Iliev's aforementioned traits were instrumental to my success in the class and lead me to believe that he is a strong candidate for the Eichholz Teaching Award.

To whom it may concern,

There is no better candidate for the Eichholz Faculty Teaching Award than Plamen Iliev. From the first day of class to the very end, his passion for the course shone through every word he spoke. Despite a warning from a friend that the material is immensely difficult, I was confident that I would succeed in this course, confident because of Professor Iliev's drive for student understanding. He made it clear that the course would move quickly, but at no point were we made to feel that we would not pass. Professor Iliev wants his students to learn the material; more importantly: he wants us to succeed.

Professor Iliev fully wrote out every concept and every practice problem. He regularly paused to check that the class understood what he was doing. Whenever anyone had a question, no matter how big or small, he addressed it until the student—and consequently the entire class—understood. Almost every class, Professor Iliev would roll out supplemental whiteboards so that he could show multiple situations at once, often switching between the two. This approach allowed students who were slower to catch up and write down what was on the previous board. More importantly, it encouraged us to recognize conceptual patterns by looking at separate conditions simultaneously.

Professor Iliev made himself more than approachable for help after class. At the end of every lecture, he reminded us when and where his office hours were. Almost every lecture, a student would walk up to him and ask a clarifying question about the material, and he would stay and explain for as long as was needed. After one lecture, he entertained a group of a dozen regular lecture attendees asking questions for twenty minutes after the period had ended. Professor Iliev's focus was always how the students were doing; at no point did he seem bored or like he was just trying to make it to the end of the material without issue.

Professor Iliev made it clear that if we were not doing as well in the course as we were hoping, he would take how we did on the final exam into heavy consideration. He cared about students learning the material, and if we could demonstrate that we had done so by the final, he considered the big picture more important than test-to-test standing. As a personal example, I had an extremely difficult time this semester battling my depression, anxiety, and OCD. On the day of the third test, I had had a horrible experience at the dentist, which led me to go through the rest of my day like a ghost. I took the test, did the best I could in that state, but on one problem took the entirely wrong approach. On the first two exams I got a 98 and a 94; on this exam I got a 67. I was devastated. I had 100s on every single homework and before test 3 had a high A, but after one bad day and one wrong question I had a mid-B and would need a 94 on the final to get the A that I worked so hard for. On the day of the final, I felt confident, but decided to write a letter on the front of the exam to Professor Iliev. I described my situation, begging him to consider my final exam as a reflection of my learning over the whole semester. After he read it, he smiled. I did not feel ashamed or scared for reaching out. I felt warmly appreciated as he sent me off with a friendly wave and a quiet nod.

Whether I got that 94 or he considered my final a reflection of the course, I earned an A in MATH 2550. I walked into the course unsure and scared and walked out of it confident in my mathematical skills. Professor Iliev took difficult material and made every class an enjoyable, thought-provoking experience. He re-kindled my passion for mathematics and is the most successful professor I have had in my 3 semesters at Georgia Tech. I urge whomever reads this letter to give the Eichholz Faculty Teaching Award to Plamen Iliev.

Sincerely,

Adira Amidon

Bossut, Camille M (Wed 1/16, 2:41 PM)

The following is a letter of nomination for Professor Plamen Iliev. My name is Camille Bossut and I was his student in both Math 2550 (Introduction to Multivariable Calculus) and Math 2552 (Differential Equations):

In all of his classes, Professor Iliev has been an exemplary engaging teacher. He teaches with ease and clarity, without deviating off topic so as to keep students engaged. When teaching Mathematics, I find many professors get caught up in examples that are irrelevant or end up making little sense to those listening, but Professor Ilievs examples were always clear and to the point. They also made us think about the functionality of the formulas we were applying. For instance, in multivariable calculus, he might show us how to calculate the volume of a shape both with the formulas we learned in class, and with methods we already knew and understood, to demonstrate that the approaches result in the same answer. Or, he might show us that we can analyze population variation for interacting species using differential equations, which made what we learned feel more realistic and applicable.

Professor Iliev also shows that his goal is for students to learn the material in the class, and that he will be grading their comprehension of this, not their ability to memorize formulas. This means that his classes encourage students to comprehend what they are doing, rather than mechanically applying formulas as we sometimes do. He is willing to listen when a student is struggling, and he will look at the students comprehension of the material rather than the letter grades theyve gotten in the class so far. He also provides extensive materials to practice applying concepts and be ready for exams, both at the difficulty level expected for the class and above it. This challenges students to think about when to apply what they learn in less straightforward contexts.

In conclusion, Professor Iliev is an engaging and kind professor who is seeking to do the best for his students and teach Mathematics in the name of education.

Samuel Z. Stentz (Mon 1/14, 3:31 PM)

To whom it concerns,

Hello, my name Sam Stentz and I am writing in support of Doctor Iliev for the Eichholz Faculty Teaching Award. I am a second year undergraduate student studying computer science and had Dr. Iliev for differential equations in the summer of my freshman year. Dr. Iliev deserves the Eichholz Award because he exemplifies the ideal characteristics inherent to a good teacher. Each lecture was cumulative and built upon the previous day to continue the same story throughout the semester. Outside of class, Dr. Iliev had not only the understanding to clarify his teachings but also the enthusiasm to dedicate his time into me and other students.

I went into the first day of differential equations with misconceptions from other students: memorization and rote practicing was the only way to succeed. What I found on that day and in every following class was a constantly evolving and branching story. By beginning with a simple but clear differential equation and slowly incorporating ever more complicated terms, concepts were gradually learned in a familiar environment. This order to material prevented any experiences that felt like being dropped on an alien planet. Dr. Iliev was very clear in all of his reasoning and ensured that all new theorems were clearly derived from concepts we were all familiar with. Finally, by using examples that described situations we intuitively understood, like predator prey relations and pendulums, all of our

conclusions could be immediately checked against basic intuition, a practice that Dr. Iliev really drove home to me. Instead of mindlessly running through variables and getting some arbitrary equation as a solution, I found my solutions would model things like swinging or full rotations of a clock and populations interplaying. Whenever my predators population shot up to infinity or my clock started spinning at the speed of light I knew I had done something wrong, giving me a very intuitive sense of what different equations meant. By teaching differential equations with this applied style, Dr. Iliev really made the material interactive and interesting.

Outside of the classroom Dr. Iliev was always friendly and willing to explain material to students. After almost every class I would come to Dr. Iliev with questions about the days lecture, and without fail I would be given a clear and knowledgeable explanation. Because I took my course in the summer at Georgia Tech Lorraine, there was one centralized lounge dedicated to student life and work areas. On multiple occasions Dr. Iliev came down to the lounge to talk with students and help guide them in studying and preparing for exams. This level of effort in and out of the classroom was inspiring and above what I have seen in other teachers at my time at Georgia Tech. Dr. Iliev made a big impact on my education and deserves recognition for the impact he has made on me and hundreds of others.

Sincerely,
Samuel Z. Stentz

Henry, Damian W (Thu 12/20/2018, 4:30 PM)

I am writing a support letter for Professor Plamen Iliev. He taught the Intro to Multivariable Calculus course at the Georgia Institute of Technology to me during the Fall 2018 Semester. He understood the material and conveyed the topics of the course very well. I am pleased with the content and delivery of course materials largely due to the fact of having Professor Iliev.

Best,
Damian Henry

Glover, Philip C (Wed 12/19/2018, 3:49 PM)

I just finished a MATH 2550 class with Plamien Iliev and I would like to write a letter of support for the Eichholz teaching award.

Professor Iliev was a phenomenal teacher: this level of calculus is very difficult for me but Plamien made it very enjoyable! Coming to class was always enlightening and enjoyable to me because he was able to break down the concepts and made sure that the students understood. Following on that thought, he seemed to really care about the students and the subject; his lectures were very streamlined and his sprinkled jokes served as a good time to step back and let out some laughs.