

**Nomination of Susan N. Thomas for the
CETL/BP Junior Faculty Teaching Excellence Award**

This packet contains:

- This cover page (1 page)
- Letter of nomination by her School Chair (Dr. W. Wepfer) (2 pages)
- A reflective statement on teaching from the nominee (2 pages)
- Representative CIOS Survey Comments (2 pages)
- Letter of support from IBB Director Dr. Robert Guldberg (ME) who has observed the nominee in the classroom (1 page)
- Letter of support from Dr. Al Merrill (SOBS) who has observed the nominee in the classroom (1 page)
- Letters of support from five students (five undergraduate, four currently at Georgia Tech) (6 pages total)

(15 pages total)

Evidence of impact on engineering undergraduate students is included in multiple elements of this packet.

January 17, 2017

CETL/BP Junior Faculty Teaching Excellence Award

Nomination of Susan Thomas

Dear Selection Committee,

It is with great enthusiasm that I recommend Susan N. Thomas for the CETL/BP Junior Faculty Teaching Excellence Award. Since her arrival at Georgia Tech, Susan has consistently demonstrated outstanding performance as an educator as well as a deep commitment to improving the learning experience of her students. During her first semester teaching on campus (spring 2012), Susan was assigned to teach COE3001, a required class for several COE majors that ranges in size from 45-65 students per section and that draws together a diverse student pool, ranging widely in student major (AE, CEE, ME, MSE) and age (anywhere first through fourth year or later), and that includes a large proportion of students (as high as 50%) in their first term after transferring to Georgia Tech. Despite the challenges associated with teaching students of such diverse backgrounds and experience levels, Susan was highly successful. In fact, during her first three terms achieved high teaching effectiveness CIOS scores of ~4.0. She is currently co-teaching a newly designed graduate course in Biotransport with Dr. David Ku.

Because of her desire to improve student learning, Susan participated in the George W. Woodruff Teaching Fellow Program at her first opportunity and later applied to and was selected to participate in CETL's Class of 1969 Teaching Fellows Program. In working with CETL, she developed methods for helping enhance student participation and accountability and is now utilizing many of these techniques in her courses. The next time she taught the course, her scores jumped to an impressive 4.7. A student from this course even copied me on an email to her sent after the term had ended (attached to this letter) thanking her for being a "breath of fresh air" and a great professor. Since then, she has maintained this remarkable level of teaching excellence, with her average CIOS score for the past three years being 4.7 and her score this most recent term an astounding 4.8. Clearly, Susan is an extremely effective educator.

Lastly, Susan's commitment to education and teaching is reflected not only by her teaching effectiveness scores, but also by her prestigious NSF BRIGE Award, which aims to enable early career faculty to integrate effective diversity and broadening participation strategies in their engineering research, education, and innovation activities. Through this award, Susan developed innovative teaching modules with a GIFT teacher from Cedar Grove High School that are now used in DeKalb County high school mathematics and statistics courses. Four high school students, all of whom are now studying engineering or science at leading national universities, as well as 15 undergraduate students, many of whom have been recognized with awards for their research achievements, including Outstanding Undergraduate Researcher Woodruff School of Mechanical Engineering, College of Science Roger Wartell and Stephen Brossette Award for Multidisciplinary Studies, and Fellow of the Meeting of the Minds, to name a few, also participated in research in her laboratory. Notably, 8 of the 13 undergraduate students who trained in Susan's lab are now pursuing an advanced degree (Ph.D. or M.D.) and another three are employed in positions directly related to the research subject and experience they gained in her group. Clearly, this demonstrates Susan's commitment to integrating education and research in novel and exciting ways as well as the impact that Susan is having on our undergraduate students

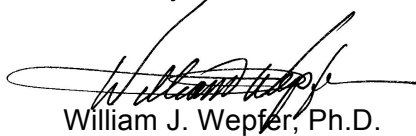
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lives. Susan inspires students to attain tasks beyond their wildest dreams! I therefore, without hesitation, provide my strongest support to Susan for this outstanding award.

Sincerely,



William J. Wepfer, Ph.D.
Eugene C. Gwaltney, Jr. School Chair and Professor

Copy of e-mail from student Josh Fields:

Fields, Josh S

To: Susan Thomas Cc: William Wepfer

Thank You!

December 10, 2013 at 4:35 PM

Inbox - GT Exchange

FJ

Dr. Thomas,

I didn't get a chance to speak with you after the final yesterday as some students were still taking their tests. I just wanted to tell you thanks for a great semester and that your teaching method/style is a "breath of fresh air" as compared to most of the other professors I've had. All too often people jump at the chance to leave bad comments or criticism, but rarely take time to compliment when something goes right. Your class was easily my favorite since I've been a student at GT and one that I actually looked forward to attending. It wasn't easy for me, but I learned a lot, and that's what matters. I only wish that you taught other courses that I need to take for my degree.

Being about ten years older than the average sophomore, I think I see things with a different perspective. It seems that the younger professors come in with the most enthusiasm to teach (and are probably paid the least) while older professors get complacent like they are just workers on an assembly line of students. I appreciate your enthusiasm and hope that it spreads to other professors.

Again, I just wanted to thank you for teaching a great class. This email is in no way meant to "suck up" or get "brownie-points". I just felt like congratulating you on being a great professor and giving credit where it is due. Good luck with your future endeavors.

Thanks again,
Josh Fields
COE 3001, 12:05-12:55PM

Susan N. Thomas Teaching Statement

Either in the context of teaching in the classroom or training and mentoring in laboratory research, I consider the opportunity for direct impact on students' professional development to be one of the most rewarding aspects of working in academia. I also believe that commitment to and excellence in education extends beyond the university lecture hall, from the one-on-one interactions with students to outreach in the community. With the overarching goal of enabling students to develop skills that they apply to solve problems through critical thinking and effective communication, I will highlight some of the approaches that I use and continually hone to most effectively teach, develop, and positively impact young students.

I teach one of the College of Engineering's largest core classes, COE3001. This is a required class for a majority of COE majors. I love teaching this class as it is one of the first "stepping stones" so-to-speak between the more basic math and science coursework our engineering students take and their engineering-focused upper division classes. For this reason, I feel as though I am in a unique position to help positively shape their enthusiasm and thinking about the incredible potential of their engineering education and to prepare them for the academic hurdles they will face in the coming semesters and in their future careers. One challenge in teaching a COE course, however, is that students are from multiple schools, ranging from AE, CEE, ME, to MSE. Additionally, the course I teach pools veteran Georgia Tech students with many transfer students in their first semester at GT. Since students learn in multiple ways and with such a diverse student group, there isn't a one-size fits all approach to learning. For that reason I provide multiple complementary resources for the students to learn with: active learning lectures and in-class notes; reference text books; notes available on TSquare that complement and are not redundant with the material presented in class and in the book; solutions to the weekly required homework sets (posted after the assignments are collected) that I have solved using the methods presented in class; suggested practice problems to supplement the homework; online videos of me solving example problems for students to watch on their own while preparing for exams; study sessions outside of office hours before exams to give students extra opportunities to ask questions and get clarification on material. I believe the breadth of resources I make available has been a crucial part of the success I have had in teaching this course.

To increase class engagement and learning of course material, I have implemented several hands-on modules for my classes. These include the copious use of pool noodles, for which I am famous with my students and regularly receive affectionate shout outs of "pool noodles!" from students who have previously taken my course as I walk across campus on the way to class with 60 pool noodles at a time. These have proven to be invaluable props for teaching the concept of deformation in axial loading, torsion, and beam bending. I also have several other props that I use and pass out to all students in the classroom, including chalk to illustrate material failure modes, elastic bands to highlight the concept of elasticity, and eppendorf tube racks to illustrate shearing strain in the absence of normal strain, to name a few.

I have implemented several methods to reach out to students and learn from their learning experiences and to provide constructive feedback. After each exam, I distribute a post-exam reflection sheet for each student to individually assess which studying and learning techniques were successful and which they could enhance or better leverage in preparation for future exams. I then collect this feedback (anonymously, if the students prefer), summarize my findings on the learning methods that typically worked best for the higher performing students in the class, and discuss in class the opportunities or suggested methods to help students learn and better perform on future exams. I also use this information to adjust my teaching approach

to best serve the collection of students I have that term. Additionally, I send private emails to students who did not perform well on exams to set up individual one-on-one meetings. In those meetings we discuss the challenges they met, why they think they ran into those challenges, and what could be done in the future to overcome those challenges. Uniformly, the feedback I have received about the one-on-one meetings has been positive, with students often noting that it was beneficial to have a constructive discussion about how to improve that was not at all punitive. Some students have also mentioned that it meant a lot to them that they weren't invisible or immediately written off as a poor performer and overlooked the rest of the semester.

I believe that two of the most important jobs I have as an educator is to encourage my students to have the confidence to solve important unsolved problems as well as be effective communicators. For this reason, in my teaching I emphasize connections between conceptual information and 'real world' challenges. One way that I achieve this is by using examples in my own research, or those from the popular press. I also emphasize that since we cannot predict the future challenges students will face in their professional careers, the goal they should have in earning their degrees is not to have just mastered rote knowledge but to be able to break complex problems into solvable parts in order to find solutions. In other words, I emphasize how vital the problem solving process is as a valuable skill to master. Another important message I give my students is that learning how to talk about problems, ideas, and solutions with their peers as well as laypersons is an important real world skill to have since engineers also require strong communication skills for success. For this reason, at all stages of a student's education - in my classroom as well as in my lab - I encourage the development of communication skills, including group discussions and technical presentations, technical writing, writing for the lay audience, and oral presentation skills. I also actively work in developing skills for setting goals, evaluating past progress, and scientific writing for members of my research group.

In addition to my educational mission on campus in the classroom and laboratory, I am committed to educational outreach. For example, I served as a panelist for the GT1000 English 1101/1102 discussion on The Immortal Life of Henrietta Lacks, since it touches on themes that fit closely with my research. I also have visited metro Atlanta high schools, including Holy Innocents in the Fall 2016, to discuss cancer research breakthroughs and opportunities as well as developed modules for DeKalb County high school mathematics courses in 2014, activities that have allowed me to promote STEM education to >400 metro-Atlanta high school students. Additionally, I have given talks on cancer research to Komen 3-day participants highlighting the research going on at Georgia Tech and the potential for engineering to make an impact on cancer patients' lives. Lastly, I have also had the opportunity to serve as a guest lecturer in ME3141 Cutting Edge Technologies, a class that is a part of the Technology and Management Honors Program, BME's 4S 556, and BIOL4015/7015 Cancer Biology and Technology, a class with over 100 enrolled graduate and undergraduate students from both COE and COS.

In summary, my educational philosophy and the reasons why I love my job as a faculty member can best be described with three words: passion, honor, and opportunity. My job as an educator is my passion and I feel extremely honored to have the opportunity to positively impact Georgia Tech students' lives in the classroom and through research. I strive everyday to infuse my classroom and laboratory culture with these same values - to spur students to pursue their education and work in their future professions with passion and to recognize that seizing opportunities big and small to make a constructive impact on society is an honor, one that Georgia Tech helps make possible.

Representative Comments from CIOS Survey

Fall 2016

- The professor was excellent.** She was fair and really knew her stuff.
- Teacher's use of materials to express concepts learned in class (pool noodles to show types of deformation).
- Dr. Thomas is tough but fair. Nothing tested was unfair. **She is an exceptional lecturer.**
- Interactive, and enthusiastic
- Dr. Thomas was the BEST!!!! She is seriously such an amazing teacher. She encourages critical -thinking and problem solving, which is a skill I definitely need improvement with. Also, she is so clear with the theory and material, going slow enough to allow everyone to follow along and fast enough to keep it interesting. She is seriously the best.**
- Dr. Thomas is great at involving students in the lecture. She answers questions very well and teaches each topic from multiple approaches to ensure understanding.
- The instructor was very good at explaining concepts. She also made a concerted effort to interact with students in class. All of this served to make this course a positive learning experience for.
- You are one of the BEST teachers I have ever had.** You explained concepts clearly. Going over examples during lecture was very helpful in learning the material. The homeworks and tests were designed well. I never felt like you asked us unfair questions on material we hadn't really covered.
- Great lecturer.**
- She is kind and explains things very clearly and thoroughly.
- Professor Thomas is consistent and clear in lecture.
- Clearly enthusiastic about the material
- The greatest strength of Dr. Thomas was her ability to teach new concepts in lectures and her ability to engage the students into understanding the concepts by asking many questions. She had a good, interactive classroom environment.**
- Lectures were well presented
- I loved Dr. Thomas' enthusiasm in teaching the course and greatly appreciated the amount of resources she provided to support the course.
- Using the Pool Noodle was great! Keep doing that!**
- Lectures were interesting, related concepts to examples very well. Answered questions thoroughly and as if she knew how it felt to be a student and not understand the material. Got class engaged in lecture.
- Enthusiastic teacher and pool noodle!
- Teaching skill and clarity.**
- Her ability to explain difficult concepts.
- Dr. Thomas is an incredible instructor, who understands material well enough to explain it simply and with simplified models, as well as answer complex and specific questions about problem solving methods. She did not simply regurgitate formulas or copy examples out of a textbook but went in-depth into explanations and worked very hard to initiate student participation. She was interesting and entertaining, and very clear about what was needed for test preparation, and what role each topic would play in our future education and examination.**
- She is my favorite teacher at Georgia Tech so far.**
- I wouldn't change a thing about her. She is polite, excited, and genuine about everything she taught. I loved having her as a Professor.**
- Dr. Thomas is an excellent instructor, especially for a course that is taken by many different majors and pre-requisite for many other courses.**
- The Professor's enthusiastic spirit and effort was the most beneficial element to my learning during this course.
- Obviously cares a lot about the subject and wants the students to care to, which helped a lot.

Fall 2015

- Dr. Thomas is able to take a very complex topic and make it easier to grasp during lectures. She was very easy to understand and the lectures went at a good pace.
- I enjoyed Dr. Thomas' teaching style. She was always informative, on topic, and had effective ways of demonstrating and explaining complex concepts.**
- Organized lectures, it was clear time and thought went into what AND how the topic covered was to be taught.**
- Professor Thomas uses a lot of visual aids and so did her TA. I especially liked the pool noodle as a model object for real-world reactions to external loads.
- Very enthusiastic and great at explaining concepts
- Willingness to help students.
- Her ability to relate to students and the topic.
- Probably the best professor teaching-wise that I've had.**
- Great online resources**
- Professor taught with excellent clarity and made sure to stay within the scope of the class.
- The vigor with which the instructor taught. The practical examples, layman explanation. Learned our names <- that was nice
- Very good at communicating when teaching and extremely fair in all expectations.
- Lecture ability and the knowledge of the information to be able to make high level material -deformation easier to grasp.

- She is clearly excited about the course material and that really helps for an occasionally boring subject matter
- enthusiasm
- Very clear, knowledgeable about course, and gave pointers about common mistakes which were helpful.
- The ability to motivate anyone.** She will also answer any question you have.
- Loves teaching, gets us engaged**
- She definitely seemed to like teaching, and she didn't let her pregnancy detract from it. She's very intelligent and has a great way of interacting with her students, especially learning their names and encouraging class participation.
- Professor's enthusiasm for the subject
- She's funny and make this course more fun to learn.
- Ability to explain and demonstrate the material in a clear and easy-to-understand manner. Also the teacher's enthusiasm encouraged greater participation.
- Overall, Dr. Thomas went beyond what I've come to expect from a GaTech professor. She is better organized, had well thought out lectures, and understood the material she was teaching; more so than the average class I've taken.
- Prof Thomas was a great instructor. Easy to understand, fair, and concise.
- 10 out of 10.**
- Once again, heck of a teacher. Great professor!**
- Excellent class and teacher**

Fall 2014

- Great teacher**, interesting subject matter.
- The enthusiasm of the professor motivated me to learn more about the course and the subject taught in it.
- The teaching was clear and effective and found it easy to process the information. **Easily the best teaching I've received thus far.**
- The quality at which the course was taught was exceptional.**
- The course was great, mostly due to Prof. Thomas.**
- Very good about answering student questions and teaching material.
- The clarity in our lessons, with backup notes on T-Square and ample examples really helped us learn.
- Broke down complicated topics into pieces easier to understand. Not only made us feel like we were understanding more of the overall topic but we got to see why things related and how the smaller, doable topics built on each other to solve complex problems
- Knowledge and enthusiasm for course. Dr. Thomas made us think about the process of problem solving more then the actual answer of the problem which was a valuable lesson to learn.
- Excited about subject matter and explained it thoroughly
- Her enthusiasm and her concern for her students.
- Clear, focused and easy to understand
- Her lectures explained the concepts very well and she was always enthusiastic about teaching the course. Cares about her students very much.
- Coverage of the material was magnificent**
- Awesome teacher!!
- I hated statics, and ended up loving this class! I'm so glad you were my teacher, and I have learned so much! Thanks for a great semester!**
- This class seemed formatted to help students succeed, and that really helped me want to learn.
- One of the best professors that I've had since starting school at Tech, especially on the engineering side of my education. Always willing to help and made sure that we understood the concepts and the processes and could think through the problem-solving processes. Seemed to actually care about her students and want them to succeed.**
- exceptional professor, one of the top 3 I have had at Tech.**
- One of the better professors I've had because of the way she engaged the students. Asked questions to engage us in the class and explained anything that was not understood.
- Prof. Thomas is very passionate and enthusiastic about teaching. She is willing to explain the material by answering questions.
- Teacher was great!**
- Dr. Thomas is enthusiastic and has very charming way of teaching the material. **One of my favorite instructors at Georgia Tech.**
- She was clearly very interested in getting to know all of her students. She is great at trying to get everyone involved without making people feel like they are being put on the spot.
- Was also concern about how the class was doing and looked for ways to make it a better leaning experience.
- She was very passionate about what she was teaching and generally seemed to care about her students.
- She was always very excited to teach and had a lot of energy. **She has been without a doubt my favorite teacher I've had at Tech.** Few teachers care as much as she does, and that's what I miss most about my high school. But she genuinely wants us to learn and teaches very well, which in turn increases my desire to work hard and learn. She asked for feedback throughout the semester and continuously looked for ways to improve her teaching.
- Prof. Thomas' enthusiasm on the subject creates a positive attitude for the students and makes them eager to learn.
- You are very enthusiastic about the subject matter, and it was apparent very early on that you wanted to pass that on to us.
- One of my favorite professors at Tech!**
- The best professor i've had at tech**
- She really cares about the success of her students.**

January 19, 2017

Dear CETL Selection Committee,

It is with great pleasure that I write to this letter in support of Susan Thomas's nomination for the CETL/BP Junior Faculty Teaching Excellence Award. I have known Susan for five years since we recruited her to Georgia Tech as an Assistant Professor in Mechanical Engineering. In this time, I have grown to know Susan as not only a successful researcher at the forefront of her field, but also as a hard worker, a great team player, and someone who is genuinely dedicated to her community and the betterment of our students. She demonstrates this by being active in several of the research initiatives that take place within the Petit Institute for Bioengineering and Bioscience that I direct, such as serving co-Director of the Integrated Cancer Research Center, an Executive Committee member of the Regenerative Engineering and Medicine Center, and an Executive Committee member of the Immunoengineering Center. As a reflection of her positive contributions to our community, she was awarded the IBB Pre-Tenure Faculty "Above and Beyond" Award in 2014, an award given to "team-based individuals that demonstrate exemplary service to the institute and contribute to its warm, collaborative, environment", after nomination by multiple members the institute staff. In 2015, she also hosted an undergraduate student through the Petit Undergraduate Scholars program, a prestigious and highly selective one-year long opportunity for mentored research. I recently learned that this student actually worked in Susan's laboratory as a high school intern and her positive research experience helped convince her to not only attend Georgia Tech to major in Biomedical Engineering but also pursue a co-op at St. Jude Medical in Spring and Summer 2016 and a graduate degree after she graduates in Fall 2017. This student has also already co-authored one peer-reviewed publication with Susan and will be listed as a co-author on a forthcoming manuscript. Susan's dedication to mentorship is clearly making a difference in the education and career paths of our students.

I have also had the opportunity to observe Susan in the classroom. I was struck by the easy, familiar interactions that she had with her undergraduate COE3001 students, making jokes while providing structure to class interactions for the day's agenda. Her demeanor was calm and her instructions were clear and readily followed. It was evident to me that her students loved her and that she showed them mutual respect. She had clearly created a warm and open environment conducive to learning. Her teaching effectiveness scores, which over the past three years have averaged 4.7, unmistakably reflect this.

Susan is a passionate, conscientious teacher who enjoys working with undergraduate and graduate students. The letters from her students show her efforts and their appreciation. For all of these reasons, I believe Susan would be an exceptional selection for the CETL/BP Junior Faculty Teaching Excellence Award.

Sincerely,



Robert E. Guldberg
Professor and Executive Director
Institute for Bioengineering and Bioscience



Alfred H. Merrill, Jr., Ph.D.
Professor & Smithgall Institute Chair
in Molecular Cell Biology
School of Biological Sciences, Georgia Tech
Atlanta, GA 30332-0230
al.merrill@biology.gatech.edu
January 19, 2017

Re: Dr. Susan Thomas's nomination for the Junior Faculty Teaching Award

Dear Selection Committee,

I am pleased to provide this letter in support of Dr. Susan Thomas's nomination for the Junior Faculty Teaching Award. Susan has kindly served twice as a guest lecturer in my BIOL4015/7015 Cancer Biology and Technology class and I have attended both of her presentations, so I have first-hand knowledge of her skills as a teacher. This large course, which has over 100 undergraduate and graduate students each fall term, involves lectures on basic concepts in cancer biology and technology that I complement with guest lectures from Institute faculty who perform cancer research. In each of Susan's lectures, I have been very impressed by her ability to introduce new material to the students in a manner that is easy to understand ("digest") by leveraging familiar concepts as well as ideas and stories from the popular press (Jimmy Carter's recent cancer treatment, for example). Her presentation had an especially powerful impact on them because her cancer research concerns many of the central dogmas of cancer that I teach in my course (angiogenesis, drug delivery, metastasis) but extends them to new areas that are clearly cutting edge even if they are less widely appreciated (lymphangiogenesis, immunotherapy)—giving students the realization that they are not just learning what is known now but also getting a foot-hold into the future.

Her ability to bridge student learning from one common area of knowledge to another is quite impressive and demonstrates her thoughtful approach to integrating her research with learning. I was also quite struck by how in each of her lectures she was so effectively able to deeply engage with students during the question and answer sessions. At the end of each lecture she gave, the class had more questions (easily more than two dozen) than there was allotted time, and Susan followed up with several students who contacted her after class both in person and via email. To me, this shows how well she is able to captivate and connect with a large and diverse audience of students through her effective teaching methods and approach as well as her dedication to ensuring that each individual student is maximizing their learning.

In summary, it is clear that Susan is a passionate and effective educator with a dedication to integrating research and teaching. I strongly support her recognition with the CETL/BP Junior Faculty Teaching Excellence Award.

Sincerely,

A handwritten signature in black ink that reads "Alfred H. Merrill, Jr." The signature is written in a cursive, slightly slanted style.

Alfred H. Merrill, Jr., Ph.D.
Professor of Biology and
Smithgall Institute Chair of Molecular Cell Biology

January 25, 2017

To whom it may concern:

I am writing to express my enthusiastic support of Dr. Thomas for the CETL teaching excellence award. Good teachers provide resources that facilitate learning. Great teachers make learning not only easy but also something students look forward to. Dr. Thomas fits the definition of a great teacher to a “T” and is easily one of my favorite professors from my time at Georgia Tech.

I took Statics in the spring before I took COE3001 with Dr. Thomas and wasn't as successful as I would have liked. I struggled in the course, reached out to the professor for assistance, and still struggled, ending with a C in the course. So when I started Mechanics of Deformable Bodies I was quite nervous. I struggled with the first midterm, but started doing better once I put in more work and with Dr. Thomas's help in office hours. One of the crucial things that facilitated this was the post-exam reflection sheet, which helped me think through what I had and had not done to effectively study, and where I could invest more energy to perform better on the subsequent exams. After we discussed as a class what resources tended to be the most valuable and used most frequently by students who performed the best on the first exam, things started to click. I began to use the online material more and attended office hours with Dr. Thomas. At that time, not only did the concepts begin to make sense but I actually enjoyed learning them! I also started to take more advantage of the numerous times we solved example problems in class in small groups. Dr. Thomas would walk around the room and interact with students about their progress on problems and the difficulties we ran into. This was an opportunity to not only apply the concepts we had just learned to solve actual problems but also ask Dr. Thomas in a low pressure environment both conceptual and specific questions as we ran into them for the first time in class, not when we were on our own doing the homework at home. After we had had time to work on the problem, Dr. Thomas would lead the class in a discussion about the problem solving method and approach, highlight the issues or questions from students she had noticed most frequently, and subsequently discuss how to go about successfully solving the problem. Needless to say, I found these in class exercises extremely conducive to learning, which helped demystify the learning process, reinforce that I wasn't the only one who had questions about the material as we learned it, and help me build confidence in my abilities. After a rocky start, I am proud to say that I earned a 100% on exam 2, a 95% on the final, and finished the semester with an A.

Dr. Thomas's class was my favorite that semester and is easily one of my favorites from my time as a student at Georgia Tech. But this isn't just because it was enjoyable to go to class, but because I really learned a lot in Dr. Thomas's class! I am incredibly thankful to her for the opportunities she gave me to grow and learn. I could not recommend any other professor more highly for this award.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paige Orangio'. The signature is fluid and cursive, with a large loop at the end.

Paige Orangio
Materials Engineering 2017

January 23, 2017

Dear Committee,

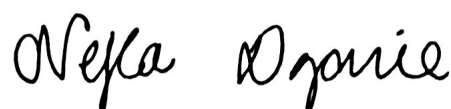
I am Nejla Dzanic, a third year Civil Engineering student. I had the opportunity to take Mechanics of Deformable Bodies with Dr. Thomas in the Fall 2016. Her class is easily one of my favorites that I have taken, mostly because of the way in which Dr. Thomas was able to infuse the class with energy and excitement, by engaging with both the class and material, as well as reaching out personally to her students. She also was extremely effective at teaching complex subjects in ways that were easy to understand. She is easily the best teacher I have had at Georgia Tech.

One thing that sets Dr. Thomas apart from other professors is her clear passion about teaching and student learning. She makes a special effort to learn and use student names in class. She always called on me as well as other students in class by my name, helping me feel as though I wasn't invisible. But also it made me feel accountable and as though someone was looking out for me. For example, I did not perform as well as I had hoped on the first exam and was at risk for not getting a good grade in the course. I attended her office hours to discuss my performance and before I even got my exam out to start our conversation, Dr. Thomas said she noticed my grade was lower than she would have hoped and that she was hoping that we could chat about what went wrong. She then went through each problem with me, without specifically referencing what I did on the exam but asked me conceptually about my understanding of each problem. With each of my answers she responded with enthusiasm or gently steered me in another direction until I arrived at the concept underlying the problem and its solution. After we had gone through each problem, she summarized her impression of how the exam went for me and it perfectly captured what I was feeling now that we had chatted - that overall I felt confident in the concepts but that there were some crucial aspects that I had not picked up on or emphasized enough in my studying. She explained that she had every confidence that I could turn it around by adding some additional practice problems to my studying to make sure that I was getting enough practice in solving problems. I left her office much more hopeful than when I arrived. Our conversation had helped me build self-confidence as she clearly had not written me off. I think I lived up to that potential she saw in me, earning a 100/100 and 99/100 on the second midterm and final.

In addition to Dr. Thomas's personal attention to individual student learning and performance, she also goes out of her way to create opportunities for student learning outside of the classroom. She provides ample online supplementary notes, additional practice problems, and makes videos that we can use on our own at home that show her solving previous exam problems. She also hosted a two hour study section during the finals week reading period to help us prepare for the final exam. During this study section as well as during all of her office hours, she kindly and very helpfully walked me through the questions I had - big or small. She also always treated me and the other students in attendance with respect. In so doing, she made me feel welcome and as though I was in a protected environment to ask her questions without judgment.

Overall, Dr. Thomas is an excellent teacher who is most deserving of this teaching excellence award. I am very thankful to Dr. Thomas for the confidence she both had in me and instilled in me. Dr. Thomas is not just a teacher, but also a champion of her students.

Best,
Nejla Dzanic
Civil Engineering
Class of 2018



Jordan Wolder
714 Techwood Drive NW
Atlanta, GA 30313

January 25, 2017

To whom it may concern:

My name is Jordan Wolder and I am a fourth year Civil Engineering student. In Fall 2015 I had the pleasure of taking Mechanics of Materials with Dr. Thomas. She was a great teacher and she provided me with a wonderful foundation of mechanics that I continue to use in Structural Analysis and steel and concrete design classes. I consider the time I spent in her class some of my favorite and Dr. Thomas to be one of the best if not the best professors I have had.

What sets Dr. Thomas apart from other professors at Georgia Tech is her ability to communicate complex concepts in a way that is easy to follow and comprehend. She does this so well that learning really is enjoyable. For example, she used class time to not only introduce new concepts but to also give us the opportunity to start using that new information to solve problems. The problems she selected always highlighted fundamental concepts that reinforced what we were learning that day as well as from previous lectures. She also took the time while we were solving problems in class to walk around the room and interact one-on-one with students, to answer specific questions, and to find out what we were struggling with. She then used that information to adapt what she was teaching to make sure we understood not only the concepts, but also how we apply them to our problem solving approach. Another aspect of her teaching that I enjoyed was her use of props, including my favorite, pool noodles, to illustrate many of the concepts fundamental to the course. She also incorporated real world examples that highlighted the applicability of the material we were learning to both our everyday lives as well as our future careers as engineers. Without a doubt, her teaching style brought the ideas to life for me, and helped me connect with the material in a meaningful way that helped me both retain and effectively use it.

Besides delivering effective in class lectures, Dr. Thomas provided copious resources for us to use outside of the classroom to help our learning which included online problem solving videos to prepare for exams, supplementary online notes, in-depth worksheets, and most useful for me - extra practice problems.

In addition to being clear, prepared, and fair, another aspect of Dr. Thomas that makes her a fantastic teacher is her very obvious passion for teaching engineering and for her students. It was apparent on day one when she spent the lecture highlighting our vast career prospects (Designing earthquake-resistant buildings for example!). It was also apparent throughout the semester when she quickly learned and used each student's name. Her enthusiasm and approachability made me feel very comfortable asking her questions frequently both in class and individually in office hours. This was the single most effective way for me to connect with and understand the course material.

In summary, Dr. Thomas is a truly excellent teacher, who knows how to engage with and help her students learn effectively. I strongly support her nomination for this teaching excellence award!

Best regards,
Jordan Wolder

January 25, 2017

Dear CETL Selection Committee,

This letter is in enthusiastic support of Dr. Thomas's nomination for the CETL Teaching Excellence Award. I first met Dr. Thomas when I took her COE3001 Mechanics of Materials course. I very much enjoyed the class and especially her approach to teaching it. Her enthusiasm for student learning was apparent from the first to the last day of class. And it was very easy to make a one-on-one connection with her, either when asking about homework or conceptual problems that came up in class. This is because not only was she extremely encouraging, but she went out of her way to learn and use the names of every student in the class. After completing the course, I stopped by her office to pick up my final exam. We had a pleasant conversation, with Dr. Thomas mentioning that each course is just one along a journey that will transform me into an engineer and encouraging me to consider doing research or a co-op to continue to broaden my experience and seize the opportunities afforded by being a student at GT.

The following semester, my friend happened to be taking her course. It turns out that Dr. Chen, with whom I was taking a course that term, had organized for Newton's original Principia, which are preserved by the GT library, to be on display and available for viewing by students in her course. Dr. Thomas had heard about this opportunity from Dr. Chen and encouraged her class to also join in seeing a part of what she affectionately referred to proudly as "nerd" history. A self-proclaimed nerd herself, she and a graduate student in her lab were there, as were my friend and I, as well as other students from our respective classes (~15 total). Interacting with her in that casual environment and seeing her obvious excitement in experiencing a piece of engineering history made a strong impression on me. That term, I eventually began to think more about research opportunities as avenue to broaden my horizons. So a year later, I stopped by after her class to catch a few minutes of her time. My hope was to ask her about a research opportunity in her lab. Dr. Thomas was of course happy to see me and we set up a meeting to discuss a research project.

In Dr. Thomas's group, I worked in what to me was a completely new area (bioengineering) but on a specific project that perfectly leveraged the concepts that I had learned in her COE3001 class. Her group had recently found that lymph nodes from animals with tumors were stiffer than those from healthy animals. Her team hypothesized that this stiffness might be from some change in the cells within the tissue, either from the presence of cancer cells that had spread there, or some other effect that the tumor was having on cells in the lymph node. To address this question, I used ANSYS to construct a model lymph node with different distributions of cell stiffnesses. After constructing a model tissue in ANSYS, I then subjected it to 10% strain via uniaxial compression by a steel semicircular indenter, a model configuration that was analogous to what previous researchers in the lab had done with actual lymph node tissues. I then used ANSYS to estimate the amount of force required as I varied the proportion of randomly distributed stiffer (cancerous) cells of total. I found that increasing this fraction increased the stiffness of the model lymph node tissue in a roughly linear manner. I then tested what the effect was of having the stiffer cells in clustered subregions. I found that by clustering, the effects of stiff cells on the overall lymph node response to compression were masked until only the highest proportions of stiff to total cells in the tissue were evaluated. Dr. Thomas's group was excited by these results, indicating that they suggest

that lymph node stiffening, which is commonly observed in cancer patients, may arise only late in cancer progression, long after cancer has spread to the lymph node.

During my time in Dr. Thomas's group, I meet weekly with Dr. Thomas and a graduate student in the lab in a roundtable face-to-face meeting. I also attended the weekly lab meetings where I had the opportunity to learn about cancer and the lymphatic system, totally new areas to me since I had not had significant course work in biology since high school. At the end of each semester I also presented my findings to the entire group as a formal presentation. Nerve-wracking as it was, it was a great learning experience. I also had the opportunity to participate in lab lunches and lab parties that were hosted at Dr. Thomas's house, which made me feel like an important and valued member of the team.

After working in the Thomas lab for one year, I graduated with my B.S.M.E. in 2015 and entered the M.S. program in Mechanical Engineering, completing this degree in 2016. My title at Lockheed Martin is Aeronautical Engineer and I work in the Aft Fuse and Empennage Airframe Team. Currently, I am working with a team in India making digital models of parts that were hand drawn in the 1950's. The Indian team is responsible for manufacturing the tail section of the plane, which until recently was manufactured by a different company in the US. While a small portion of the challenge is modeling complex parts and assemblies, the larger portion of it comes from solving 60 years of unrecorded changes. The previous company made the tail section of the plane and did not always inform Lockheed-Martin when they had to make changes to it for one reason or another.


Two things I learned during my time in the Thomas lab have really stuck with me:

The first thing I learned is how to not be overwhelmed when faced with large, complex problems. I learned from her and the graduate students in the group how to start with the small pieces of the puzzle that you do know, and then methodically test and gather more pieces of the puzzle until you understand the process you are researching. While no where near as complex as the human body, the parts that make up the airplane have to interact with each other to accomplish the function at hand. No one part of an airplane flies on its own.

The second is how to present a large amount of complex information effectively and efficiently. Seeing how the graduate students in the lab made and presented their information in the group meetings taught me innumerable lessons on communication. This has been invaluable as half the people I work with are on the other side of the world. Sometimes I speak with them on a telecom, but a majority of the time my communication with them is through a Powerpoint. The Powerpoint must get my point across without me being there to explain it or even being on the phone with them (mainly due to the 9.5 hour time difference).

These skills have been invaluable in my professional career. I cannot thank her enough for what I learned from her and the professional growth opportunities she gave me.

Best,



James Patrick Caudill

January 26, 2017

Dear CETL Selection Committee,

I am writing this letter to express my highest enthusiasm and support for Dr. Thomas to be recognized with the CETL Junior Faculty Teaching Award. Dr. Thomas is an outstanding educator who has been a transformative figure in shaping my life through her dedication to teaching and to her students.

I first met Dr. Thomas as a senior in high school after I reached out to her via email. I was looking for a research internship to broaden my experience in cancer research, having spent the previous summer working at the Winship Cancer Institute at Emory University. However, as my mother is a PhD engineer, I wanted to immerse myself in engineering research. The research position was to be a part of my senior class at the Center for Advanced Studies at Wheeler High School. We were able to schedule a phone call and Dr. Thomas welcomed me to visit her group.

My parents and I first visited her October 1, 2012. We had a wonderful, positive conversation and since that day, I have had a close working relationship with Dr. Thomas and the members of her group that has become central to my identity as an engineer. When I was first starting as a high school student that term, I worked on a project analyzing the fluorescence cell measurement data related to metastasis. During that time, not only did I have the opportunity to interact 1-4 times weekly with Dr. Thomas to keep her up to date on my progress, but she also provided feedback and then attended my end of term presentation that took place at my high school. The fact that despite her busy schedule she drove out to Marietta to attend affirmed her dedication to my development and success. I also had the opportunity to attend the BMES Annual Meeting in Atlanta as a Biomedical Engineering Society High School Scholar. At that meeting I attended research talks with Dr. Thomas. The experience was of course an extraordinary honor.

The following fall I enthusiastically enrolled in Georgia Tech as a Biomedical Engineering student with a Zell Miller Scholarship. I was determined to continue my research that I had started in the Thomas lab as a high school intern. I asked Dr. Thomas if I could conduct research in her group. She said I was of course welcome. However, she did ask that I abstain from research my first term. She was concerned that with so much change in adjusting to campus life, that research might overwhelm my coursework obligations. I was disappointed but heeded her advice. In retrospect, I understand now that she was looking out for my best interests as a student first and foremost, an attribute that I believe speaks volumes of her deep concern for her students and their learning. The following term, after recognizing and balancing the challenges of a full course load at Georgia Tech, I asked Dr. Thomas once again if I could join. She said I was of course welcome. Needless to say, I was delighted to resume my research in the Thomas lab.

I worked in the group for two terms (Summer and Fall) in 2014, continuing my project from my high school internship but advancing into experimentation utilizing flow chambers and fabricating microfluidics. It involved integrating concepts from fluid mechanics and biotransport with cell biology and it was a lot to learn. However, attending our weekly group meeting, discussing the ideas and concepts with Dr. Thomas, working in the lab with her team, and giving group meeting presentations each term caught me up to speed. I enjoyed the work and experience immensely. In particular, I noticed that not only did I grow in my understanding of the transport fundamentals and biology we were analyzing, but also in my communication skills and capacity to engage in scientific discussions. With the support of Dr. Thomas, I eventually applied to and was accepted into the Petit Undergraduate Scholarship program, a paid, one-year long (2015 Spring, Summer, Fall) research position under the supervision of a graduate student mentor, including performing research full time during the summer term. For a research project that I developed during a prior semester, I was included as a coauthor on a recently published peer-reviewed manuscript. I was also accepted to give a poster session at the 2015 Annual Meeting Biomedical Engineering Society in Tampa. I was nervous but was able to field questions from the several people who stopped by my poster. In fact, Dr. Thomas mentioned that faculty at the University of Michigan commented on how productive and articulate I was and hoped that I would apply to their PhD program in the fall. I was of course flattered.

After two years of continuously working in the lab, I decided to branch out. I applied to and was offered two co-op positions for 2016, one in Alpharetta and one in Los Angeles. It was a tough decision, but I chose to go to St Jude Medical, Inc. for six months and what an extraordinary experience it was. I was able to exceed the expectations of my supervisor while there, largely thanks to the research, analytical, and presentation skills that I had developed in Dr. Thomas's group.

I returned to Georgia Tech last fall and am now once again conducting research in the Thomas lab. I already have one co-authored paper and am working on another. I feel as though I have made a real impact on the research in her group. But importantly, Dr. Thomas has had a very real and measurable impact on me. From high school, through my entire time here at Georgia Tech, and eventually to when I attend medical school after graduation, Dr. Thomas has had a direct, vital, and positive impact in shaping my education and career trajectory. I am truly grateful to have such a wonderful and dedicated mentor. It is without question that the teaching, experience, and mentorship she has provided and continues to provide me as well as the rest of her students makes her most deserving of this teaching excellence recognition.

Sincerely,



Ananyaveena (Veena) Anilkumar