2022 Eichholz Teaching Award Nomination | Dr. Michael Evans

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February 3, 2022

To whom it may concern,

I am delighted to nominate Dr. Michael Evans for the 2022 Eichholz Faculty Teaching Award. Michael has long been a leader in innovative, rigorous, and empathetic instruction within our School and has taught over one thousand undergraduate students in lecture and laboratory courses over the past academic year. Building on lessons from the past two years, Michael has helped maintain advances in instruction in the First-year Chemistry Program and organic chemistry lecture courses to promote peer instruction, information literacy, and grappling with complex ideas.

In his primary role as a laboratory coordinator, Michael has had to navigate changes in personnel and instructional mode while maintaining the physical lab space and ensuring high-quality instructional materials. Juggling these responsibilities demanded a philosophy of open communication with teaching assistants and robust structure in their orientation and training. He projects accessibility and approachability with both teaching assistants and students, aware of the stressors that a collegiate chemistry laboratory can induce.

Michael's lecture courses emphasize flexibility in design, problem-based learning, and using class time to help students develop into effective problem solvers. Most recently, he has taught and coordinated Chemical Principles I (CHEM 1211K) in Fall 2021 and Organic Chemistry II (CHEM 2312) in Summer 2021. Through his efforts teaching large courses serving a variety of majors, Michael has had a profound positive impact on the student experience. His YouTube channel, with over 5 million views over its lifetime, projects the excellence of a Georgia Tech education to a global audience of chemistry learners. In addition, he mentors students in chemistry education research to promote a culture of feedback and continuous improvement of instruction through evidence-based approaches.

Michael has also taught seminars and non-traditional courses spanning a variety of topics, demonstrating versatility and broad interests in science. He has taught GT 1000 for several years and was awarded the GT 1000 Instructor of the Year award in 2016. His Molecular Thinking in Science and Society course connected undergraduate Chemistry and Biochemistry majors with research faculty and the “big problems” their research aims to address. Through the STEM Communication VIP, he has connected students with informal education opportunities through the
Atlanta Science Festival. More recently, he has taught a “mini-mester” course on Molecular Photochemistry centered on understanding the process of scientific knowledge construction through analysis of recent primary literature articles.

To conclude, I would like to enthusiastically nominate Dr. Michael Evans for the 2022 Eichholz Faculty Teaching Award. He is both a versatile educator and one of the cornerstones of the First-year Chemistry Program. He has served as a leader in pedagogical innovation within our School and contributed positively to the education of a very large number of students in nearly nine years at Georgia Tech across a variety of courses.

Sincerely,

M.G. Finn

School Chair
School of Chemistry and Biochemistry
Georgia Institute of Technology
Teaching Philosophy Statement  
Michael Evans  
February 2022

Great teaching in chemistry transports students to the sub-microscopic world of atoms and molecules and empowers them to investigate, explain, and apply complex chemical phenomena. I believe that chemistry is not only the central science, but also the most human science: a discipline that incorporates empirical observation, measurement, and model-building using concepts that we cannot see directly but that tap into profoundly rational ways of thinking about the world. This mixture of the macroscopic, sub-microscopic, and symbolic is unique to chemistry. I love engaging students in the process of model-building through analysis of laboratory data and grappling with real data sets or case studies in lecture courses. In this respect, I see my role as helping to train the next generation of builders of scientific models, regardless of the specific disciplines in which they end up. A key goal in all my courses is teaching for transfer.

Among the transferable skills that appear in both my general and organic chemistry courses, reasoning by analogy is one of the most important. I believe that to confidently use analogical reasoning, students require very deliberate exposure to analogous problems and concepts. In my organic chemistry courses, I have developed problem sets specifically designed to help students recognize structural and mechanistic analogies by presenting, for example, nucleophilic additions to carbenes alongside imines in the same way. Every instance of this type of reasoning has its own “template” that both systems fit, and I prefer to expose students explicitly to these templates. Thus, I do not think of the organic chemistry student’s toolbox as a set of functional groups and reactions; instead, I see it as a collection of general structures and elementary transformations.

Because most textbooks on organic chemistry do not take this approach, I have developed videos, written materials, and problem sets of my own to help students learn to think in this way. I strongly believe that careful planning, good design, and effective presentation skills are essential prerequisities of educational videos. Thus, I engage in as much planning as I can (given time constraints) in the preparation of videos, with the aim of creating resources that can last for several years at least. I also carefully design problem sets and examinations so that students are assessed on their ability to apply generalized concepts. Assessing students in this way motivates them to reason by analogy and shows them that analogical thinking is a useful skill.

Teaching large introductory laboratory courses has given me an appreciation of the mentoring, coordination, and delegation required to run a course primarily taught by graduate teaching assistants. Training graduate students to be good teachers is not as simple as handing them a set of slides and sending them on their way. I believe in maintaining complete transparency with teaching assistants with respect to my teaching philosophy and engaging in a conversation with them about what they find effective as teachers. Although not all graduate students are receptive to the idea of spending time teaching, I strive to convince them that the communication and reasoning skills they will develop as teaching assistants will serve them well in a research context. I also actively express concern for their well-being and ask them to do the
same for their students. I believe that the human element of mentoring TA’s is as important as—if not more important than—the technical element.

For students in the chemistry laboratory, I believe that negative emotional responses to the content and environment represent the single biggest roadblock to academic success. Feelings of anxiety, helplessness, and frustration limit students’ ability to operate with confidence independently in the laboratory. With this in mind, I devote considerable attention in my courses to developing materials that help students prepare to enter the laboratory with confidence and comfort. Mindfulness is introduced at the start of the semester as a key component of effective notebook keeping and as a mechanism for metacognition in the laboratory space. Technique tutorial videos introduce students to the glassware, instruments, and methods they will use to generate data. Chemical safety is covered using the RAMP framework, which enables students to recognize hazards, assess risks, mitigate these risks, and prepare for emergencies before experiments take place.

In my courses, I strive to hold students to rigorous academic standards while offering a great deal of support as they learn beyond their comfort zone. High standards, strong support is a mantra I use that sums up this philosophy. In this spirit, I have recently begun to implement aspects of specifications grading in my laboratory and lecture courses. Individual assignments include detailed specifications for satisfactory work and are graded on a pass/fail basis with some opportunities for revision or repetition. For example, in my laboratory courses I have developed a Certified Reagent Operations assignment that requires students to execute good technique under observation by their lab partner or teaching assistant. In my Molecular Photochemistry course, the final letter grade is based on satisfactory completion of minimal numbers of each type of assignment. Although the specifications are strict to ensure high quality in the final products, simultaneous support ensures that students can ask questions and receive feedback before deadlines arrive.

At the same time, accessibility and approachability are extremely important to me as an educator. I make a conscious effort to use enthusiasm for chemistry to draw students into conversations. I love using real-time messaging and course forums to engage students in conversation, not only to help them learn but also to help me understand the misconceptions and other roadblocks that can hold students back. I profoundly believe that accessibility makes me a better educator and operate every single day on that belief.

My teaching philosophy can be summarized as teaching for transfer, promoting complex scientific reasoning, mentoring teaching assistants for effective large-scale instruction, battling negative emotional responses in the laboratory, and maintaining high standards and strong support for students. That said, I still feel I have a great deal of professional growth and development ahead of me as I improve my teaching practice in all these areas. Modeling growth for my students means to learn about new teaching strategies, chemical concepts, and ways of thinking about education. Learning continually from students, colleagues, and my own educational research keeps me engaged in teaching and will do so for many years to come.
Illustrations of Teaching Excellence and Impact on Student Learning

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1. Video lectures for Organic Chemistry I and Organic Chemistry II (CHEM 2311, 2312, 2313) and Molecular Photochemistry (CHEM 4801)

   These videos are regularly used as part of my flipped approach to teaching organic chemistry and photochemistry. They exemplify my efficient, visually engaging, and content-rich approach to instructional media.

2. Certified Reagent Operation (CRO) form for First-year Chemistry Laboratory courses

   Designed as a replacement for a punitive and underused Technique and Safety score, this quota-based assignment educates students on standards for accurate, precise, and safe technique in the laboratory and rewards them for operating in the laboratory in this way. Listed techniques or “operations” are those that students will carry out in the course of standard experimental procedures. Points are awarded for both the student who completes the operation and the lab partner who observes and ensures the standards are met. The goal is to make operating in the laboratory safely and accurately a positive rather than negative experience.

3. Specifications-graded assignment: Primary Literature Survey

   This assignment was administered as part of my Molecular Photochemistry course in Spring 2021, which uses a specifications grading model. The assignment prompt and an example of exceptional student work are included.

4. Selected comments from Course Instructor Opinion Surveys (CIOS)
1. Video lectures for Organic Chemistry I and Organic Chemistry II (**CHEM 2311**, 2312, 2313) and Molecular Photochemistry (**CHEM 4801**)

The screenshot below is typical of the style of my videos, which employ color in strategic ways, minimize periods of silence, and employ dynamic motion as much as possible to maintain engagement.
2. Certified Reagent Operation (CRO) form for First-year Chemistry Laboratory courses

--- How to use this form

**Certified Reagent Operation Form**
First-year Chemistry

<table>
<thead>
<tr>
<th>Task</th>
<th>Instructions</th>
</tr>
</thead>
</table>
| **Pipetting a Liquid** | - Mass of liquid transferred is measured on a balance and documented properly (assume a density of 1.00 g/mL)  
- All measured volumes are within ±5% with respect to the target volume  
- No liquid is spilled on the bench surface  
- No obvious errors are committed, particularly contamination |
| **Weighing a Solid** | - Measured mass of solid is documented properly  
- No solid is spilled in the balance  
- Solid is transferred only off the balance and spillage is minimal  
- All measured masses are within ±5% with respect to the target mass (or, all masses round to the target mass in the protocol)  
- No obvious errors are committed |
| **Volumetric Preparation of a Solution** | - Stock solution or solid solute is transferred to volumetric flask without spillage  
- Solvent is added to the volumetric flask to bring the solution volume exactly to the mark. Reject the operation if the bottom of the meniscus is not sitting on the mark!  
- Flask is capped and inverted three times to mix the solution  
- Completed solution is free of debris |
| **Obtaining a Visible Absorption Spectrum** | - Deionized water blank is obtained  
- Cuvette is filled at least 2/3 full with the solution to be analyzed  
- Wavelength of maximum absorbance and maximum absorbance value are appropriately documented |
| **Titration to an Endpoint** | - Buret is filled and titrant is delivered without spilling  
- Initial and final volumes are recorded to appropriate precision  
- Titration is halted exactly at the endpoint (i.e. the endpoint is not overshot)  
- Re-filling the buret with titrant is not necessary |
| **Heating a Solid with a Bunsen Burner** | - Apparatus includes crucible with lid, clay triangle, ring stand and ring, Bunsen burner, and tubing  
- Initial and final masses are recorded to appropriate precision  
- Bunsen burner is set to produce a flame of moderate size with a clearly visible inner blue cone  
- Crucible is positioned at the tip of the inner blue cone of the flame |

Operator’s Name  __________________________ Signature  __________________________
Observer’s Name  __________________________ Signature  __________________________
TA’s Signature  __________________________
Today’s Date  __________________________

*Submission Instructions.* The student performing the operation should scan and submit completed form(s) for the current experiment using the Certified Reagent Operations assignment for the current experiment on Canvas.
3. Specifications-based assignment: Primary Literature Survey

Assignment Prompt
A large bank of articles from the primary literature of organic photochemistry is here. To complete a Primary Literature Summary (PLS), choose one of the articles, claim it by adding your name in the bank, and starting from this template, write a summary of two to three paragraphs that describes the goals, outcomes, and significance of the work described. Additionally, relate the content of the paper to concepts we have seen in class. Include at least five tags: key words or phrases that describe the subfield, method, functional group, or other important metadata associated with the work. Submit your completed summary here. Summaries are due on Fridays at 5:00 pm and one PLS can be submitted per week.

A satisfactory PLS meets the following specifications.

- The template PLS is used as a starting point and minimally modified (this helps me organize submissions)
- The language used is understandable to a senior-level undergraduate student or first-year graduate student, avoiding excessive subfield-dependent jargon
- The goals of the work are accurately and completely described
- The most important results are accurately and completely described
- The significance of the work is accurately and completely described
- The summary includes a robust connection to at least one concept we have seen (or will see) in course materials
- Text is grammatically correct and properly formatted, including subscripts and superscripts, Greek letters, and mathematical equations via LaTeX or Equation Editor where appropriate

Exemplary Student Work

Title:
Visible-Light-Enabled Paternò–Büchi Reaction via Triplet Energy Transfer for the Synthesis of Oxetanes

Author(s):
Rykaczewski, K. A.; Schindler, C. S.

Reference:

Tags:
Summary:

The paper by Rykaczewski and Schindler titled *Visible-Light-Enabled Paternò–Büchi Reaction via Triplet Energy Transfer for the Synthesis of Oxetanes* proposes a new, simple, and more efficient method of synthesizing highly useful oxetane molecules via photocatalysis and Dexter energy transfer. The overall goal was to develop a safer and more effective photochemical pathway to creating these oxetane molecules that does not rely on higher energy UV light but instead visible light, which is a less explored area. The method finally developed in this paper improves on the traditional synthesis reaction of oxetanes, the Paternò–Büchi Reaction, by employing the use of a photocatalyst that excites under visible light irradiation. The Paternò–Büchi Reaction is a fairly simple method of synthesizing oxetanes, and traditionally involves the cycloaddition of a UV light excited carbonyl to an alkane, forming these oxygen containing heterocycles. Direct excitation of the carbonyl excites an electron into a π* orbital, resulting in radicals on the oxygen and carbon of the carbonyl, which then undergo a cyclic addition with the alkene. The use of UV light is unsafe and limited in scale, but many carbonyl starting materials will not excite in the visible light spectrum. This is where a photocatalyst was found necessary for activating the carbonyl to then participate in a Paternò–Büchi Reaction.

For this experiment, a photocatalyst that absorbs visible light and populates its triplet energy state was necessary. This would then allow the photocatalyst and the carbonyl reagent to undergo triplet energy transfer, a type of Dexter energy transfer that we have learned about in CHEM 4801. Triplet energy transfer is a mechanism that, with a collision of two molecules, transfers an electron in an excited state of the donor molecule to that of an acceptor, while transferring a ground state electron of the acceptor to the ground state of the donor. This results in the donor returning to its ground state, and the acceptor being excited. For triplet energy transfer, the excited state is a triplet, and the triplet energy of the donor molecule must be close to but still higher than that of the acceptor for a successful energy transfer. For this reaction, glyoxylate derivatives were used as the carbonyl reagent in the Paternò–Büchi Reaction, as they have low triplet energies that will make triplet energy transfer from the photocatalyst efficient.

Many different glyoxylate derivatives and alkenes were studied as reagents in this experiment, but also various different photocatalysts, most iridium based, were used in order to vary their triplet energies. All reagents were irradiated with 456 nm light, negating the need for UV light irradiation in this experiment due to the addition of the photocatalyst. The results were successful, with the photocatalysts identified as most optimal being found to produce oxetanes at yields of 70% and higher after 30 minutes. The reaction was increasingly optimized with variations on the solvent, catalyst loadings, and alkene amounts. It was also found that catalysts with triplet energies lower than that of the glyoxylate derivatives produced no oxetane product, reaffirming the triplet energy transfer mechanism. The study then attempted to irradiate the glyoxylate and alkene reagents under UV-A light to compare oxetane formation by the traditional method with their new method using a photocatalyst, and the traditional method was only observed to have a 25% yield after 30 minutes. Thus, it was concluded that a new method
for more safely and efficiently synthesizing oxetanes, via a visible light photocatalyst and a triplet energy transfer mechanism that creates optimal conditions for a Paternò–Büchi Reaction, was confirmed. This is significant, as visible light is safer and more accessible than UV light, as well as it allows for carbonyl reagents to be used that would not traditionally absorb visible light, as long as their triplet energies were low enough. As well as this, oxetanes have many uses in drug design and development, and are useful in pharmaceuticals for their biochemical and structural properties. Proposing a new method for synthesis of oxetanes may increase their usefulness and lead to improvements of products in these fields.

4. Selected comments from Course Instructor Opinion Surveys (CIOS)

CHEM 2312, Summer 2020

“Dr. Evans is an amazing professor. His care for students, especially during this crazy time, is above and beyond my other six professors during this summer. I really appreciated that he did not ignore everything happening in the world but addressed it with us, and was understanding of how it may impact our learning. He is also in general a great teacher—he explains things very well and really knows what he is talking about. Even if you don't love organic chem, you love Dr. Evans.”

“Dr. Evans is one of the best, if not the best professor I have had while attending Georgia Tech. Not only did he care about his students, but he was very clear that if students needed accommodations with COVID or the protests and BLM movement, he was more than happy to assist. I feel as is he genuinely cares about his students and wants us to do well. He was always able to offer advice on how to succeed in this course and would answer questions quickly.”

“Brilliance! I was blown away by Dr. Evans' near-encyclopedic knowledge of the course material, which was further improved by his strongly enthusiastic, clear, and concise teaching style.”

CHEM 1212K Laboratory, Fall 2020

“Dr. Evans' greatest strength was his ability to explain the underlying chemical concepts in experiments in a clear, concise, easy-to-follow manner. I really appreciated Dr. Evans' videos linked in experiment protocols, as well as the written experiment backgrounds in the protocols. As I mentioned earlier, they were extremely helpful study tools. Dr. Evans explained concepts in an engaging way and used an abundance of helpful visuals. Dr. Evans was also very active on Piazza, helping to address student questions and concerns. Several of his explanations on Piazza helped me better understand chemical concepts before exams.”

CHEM 1310 Lecture, Fall 2020

“He could explain the concepts so well. I think he understands the ideas so well at their foundation and he can effectively communicate his interpretations on difficult concepts so that they are easier for students to relate to.”
“Dr. Evans was genuinely excited to teach this class, and he enjoyed explaining how each part of chemistry worked.”

CHEM 1211K Lecture, Fall 2021

“He was extremely passionate and enthusiastic about the topics during lecture which made it easy to pay attention and engage with the content. Additionally, I think the labs he designed were very interesting.”

“His enthusiasm and relatability is absolutely incredible.”

He is very knowledgeable about the content and happy to explain any concept. He also listened to feedback and tweaked his instruction style in the middle of the semester, which was really nice.”
February 20, 2021

To Whom It May Concern:

I have had the pleasure of working with Dr. Michael Evans for several years in his capacity as laboratory director for the first-year chemistry program and an academic advisor in the School of Chemistry and Biochemistry at Georgia Tech. It is my pleasure to write in enthusiastic support of his nomination for the Geoffrey G. Eichholz Faculty Teaching Award.

Dr. Evans is renowned for volunteering to take on additional responsibilities whenever needed. He as taught organic chemistry lecture courses, sections of GT 1000, VIP courses, and special topics courses for chemistry and biochemistry majors, often on top of his regular teaching load. Most recently, Dr. Evans stepped in to teach CHEM 1310, general chemistry, when our School was extremely short-handed. Not only was this his first time teaching the course, but he also volunteered to do it in the unusual circumstances of the COVID-19 pandemic.

Dr. Evans has both a passion and a talent for developing and employing learning technology. In his early years, he transitioned pencil-and-paper pre-laboratory assignments to online platforms, one of which permitted students to explore virtual laboratory settings. Though the product was commercial and provided many “pre-packaged” experiments, Dr. Evans put in the time and effort to facilitate the creation of additional experiments specific to our lab courses, including doing some of the coding himself. This is characteristic of Dr. Evans’ approach to teaching. He goes the extra mile to ensure students have the best learning experience possible.

This academic year, Dr. Evans has transitioned our paper laboratory manuals to fully electronic versions that can be delivered to students via the course management system. This was part of an initiative to make our first-year courses fit the University System of Georgia’s “low cost” definition. The project required significant work for Dr. Evans, and that he did so with no complaint because he understood the benefit to our students is typical.

Dr. Evans has a strong background in online and flipped classroom learning from his graduate education, and he has put that to excellent use in preparing videos on experimental techniques and pre-laboratory talking points. In addition to his work in the first-year chemistry assignment, Dr. Evans has taught courses in our organic chemistry division where he also has used his video background extensively. Indeed, Dr. Evans is a leader in this area for the School of Chemistry and Biochemistry, sharing his knowledge and techniques for making and using videos in the classroom with our colleagues at a lunch and learn session. I am aware of at least two of the five attendees who now employ videos to flip portions of their classes.

More was asked of all faculty in the last year, and Dr. Evans rose to the occasion like few others. In addition to balancing hybrid laboratory courses (both in-person and online experiments occurring simultaneously), Dr. Evans taught a section of CHEM 1310 (general chemistry) in addition to serving as
course coordinator. This involved developing pre-lecture assignments to accompany the content videos used for a flipped model, in-class assignments for instructors to work with students to engage them in the material, and common exams. The fall 2020 semester was the first time in the history of the first-year chemistry program that all instructors of a given course used a 100% flipped classroom approach. There is no question that this would not have happened without Dr. Evans’ immense efforts to support both the other instructors and the students.

Dr. Evans’ approach to in-class assignments was innovative and geared toward engaging students with the material. He made use of data from peer-reviewed literature to stimulate student interest, and he employed shared documents and spreadsheets to facilitate student interaction. Exams were a particular challenge as they had to be delivered remotely, and Dr. Evans approached this with considerable thought regarding academic integrity as balanced with consideration for students’ experience in pandemic conditions.

The School of Chemistry and Biochemistry has benefitted enormously from Dr. Evans’ dedicated efforts, and I have no doubt that he has positively impacted many hundreds of students over the last several years. He is a credit both to the School and to the Institute, and it is my pleasure strongly to support his nomination for the Eichholz Award.

Sincerely,

Carrie Shepler, Ph.D.
Director of Instructional Activities and Student Experience
School of Chemistry and Biochemistry
Georgia Institute of Technology
Eichholz Teaching Award Letter of Support

When the pandemic forced us online at the end of the Spring 2020 semester, I decided to take some hard classes for Summer 2020, one of them being CHEM 2312, Organic Chemistry II. It was synchronous, unlike my other classes, which seemed like a bother at first, but actually turned out to be a really important point of connection for me while at home for so long. Dr. Evans approached the class with a surprising amount of technological literacy and flexibility, encouraging us, his students, to use Discord to discuss homework and tests or to direct message him whenever we needed. Most classes already create student GroupMe chats, where a substantial amount of fruitful discussion happens, but Discord allowed us to move that to a forum that includes the professor but still felt comfortable. He also integrated apps like Mechanisms and Chemistry by Design into the curriculum. I felt like using those apps during class helped me stay engaged in the lesson and doing assignments on them was easy but kept me thinking about the principles of organic reactions. Weekly homework assignments were challenging, so assignments overall were a good blend of depth and core concepts.

Dr. Evans was also a very capable and engaging professor. He requires students to watch course content videos beforehand, but they’re digestible, bite-sized chunks. His approach to teaching was very conducive to my learning: Dr. Evans’s main concern is that students approach reactions systematically, with knowledge of as few rules as possible. In order to show us how to use our “synthetic toolbox”, we worked through many examples from base concepts. Homework assignments served as incremental steps up in difficulty. They were challenging, but we were provided a foundation in class that I felt prepared us. Assignments focused on recognizing reactions and their “elementary steps”, then progressed to predicting and explaining the products of reactions and synthesis. The progression from simple to complicated within an assignment is helpful to me, because if my knowledge from lecture has atrophied, I can build it back up during the assignment. Plus, those open synthesis problems were really fun because I liked utilizing the “synthetic toolbox” we built up throughout the semester. They were also great practice for the tests, which were definitely another step up in difficulty, but were structured similarly to the homeworks and so, I feel, set students up to succeed on the more difficult problems.

One thing I appreciated about Dr. Evans’s class was his philosophy toward the internet. He told us at the outset that it was more important to him that we know how to apply knowledge, because the knowledge itself will be easy for us to access on the internet. That levelling quickly put me at ease. He also told us that he understood the temptations of online classes, so his tests were always “open-internet”, and the responsibility of creating original tests was his. From the beginning then, I think Dr. Evans was able to establish a great degree of trust between the students and himself. Along with his amiable demeanor and understanding, that trust really set the tone for the class and made it one of the more comfortable ones I’ve ever had. That comfort facilitated my learning and solidified organic chemistry as my favorite discipline of chemistry.

David Weinberg
Dear Eichholz Award Committee,

I had Dr. Michael Evans as my professor for Organic Chemistry I and Bioorganic Chemistry, and based on my experiences with him, I am extremely confident that he is well-deserving of the Geoffrey G. Eichholz award. In the spirit of the award, Dr. Evans brings a unique passion to teaching science classes, makes a genuine effort to support us in and out of his class, and helps students succeed, particularly in challenging classes that are common stumbling blocks in the core curriculum.

The first time I noticed that Dr. Evans is truly dedicated to his students was when he reached out to me before I began his Bioorganic Chemistry course. He noticed that a handful of students, including myself, had not had a chemistry class in a long time and offered me a wealth of resources we could use to refresh our knowledge. I was struck by the fact that, even before the first day of class, he was going above and beyond to set us up for success on a personalized level. This positive attitude shone through Dr. Evans’s teaching throughout the semester, as well. I struggled significantly in my first organic chemistry class, but as soon as I expressed this to Dr. Evans, he started taking action to support me. Instead of allowing me to feel embarrassed for falling behind, Dr. Evans always encouraged me to use different perspectives to understand the behaviors of atoms and molecules, bringing a sense of beauty to the subject. He provided me with specific, actionable advice that I could use to improve my performance. In this way, he truly stands out as a professor that is dedicated to reaching students, especially those not performing at their best.

Organic chemistry in general has a reputation for being one of the most grueling obstacles for pre-health students like myself. Because of this, I have always been impressed with Dr. Evans’s ability to teach it in such an entertaining and effective way. One of the main methods through which he achieves this is through a focus on active learning. Having been a teaching assistant for the School of Biological Sciences for six semesters, I have come to appreciate both the importance of active learning and how challenging it can be to incorporate, especially in larger classes. With a lecture section of over sixty students and with material that is exceedingly technical, I am sure that Dr. Evans put a great deal of effort into honing his teaching style, and it genuinely paid off. I never would have expected to look forward to an organic chemistry lecture, but I did every week with Dr. Evans as my professor. He made a difficult topic interesting and accessible, giving me the necessary foundations for my career.

Of all the professors I have had at Georgia Tech, I believe that Dr. Evans is among the best. He manages to share his deep passion and interest in chemistry while introducing the field to students who are totally new to it. He maintains a positive and helpful attitude towards all individuals, and it is clear that he is committed to raising the standards of natural science education here at Georgia Tech. Dr. Evans is extremely deserving of the Eichholz Award.

Sincerely,
Koyal Ansingkar
To whom it may concern:

My name is Chandler Watson, an undergraduate student in the School of Chemistry and Biochemistry, writing to show my support for Dr. Michael Evans’ nomination for the Eichholz Teaching Award. I have known Dr. Evans for my entire Georgia Tech career, taking 3 separate courses under his tutelage over the last 4 years and having the distinct privilege to conduct research in his Organic Chemistry Education group.

I will be the first to admit that I am a much different person that I was during Fall 2017 semester when I first stepped into Dr. Evans’ GT 1000 course. It was there that he introduced me to a concept that has defined me as a student, educator, and person since: GRIT. Georgia Tech has lived up to its reputation of being demanding and then some, and I know that I would not be where I am today without his guidance. His lessons focused on how we can improve ourselves one step at a time, transforming walls into obstacles and learning how to scale them. The first one he posed was reading scientific literature through a project he called: Chemistry in the News where we had to read and present a current event in Chemistry, developing presentation skills where I sorely lacked. Consistently, he preached the power of self-reflection in the face of success but especially in failure, shifting us from treating it like a shortcoming and more like a steppingstone.

Which is precisely why I find it ironic that the next major steppingstone I encountered was his CHEM 2311—Organic Chemistry I course that next semester in Spring 2018. Dr. Evans taught this class very differently than any other class I had encountered, using a flipped classroom model where we learned the material independently at home and then reinforced the concepts in the classroom. Organic chemistry is much different as a field than any introductory chemistry, requiring more mental reasoning than physical calculation. To say the least, I did not appreciate it then, but that experience has made all the difference in my life. GT 1000 taught me how to be gritty, to identify my shortcomings and learn from them; CHEM 2311 taught me to be self-reliant. I realized that my study habits were far from par—even after completely rewriting them during my first semester—and that I needed to make some changes to my habits. I had to stop treating elements like numbers and letters and more like actual substances with different behaviors. For the first time in my life, I had a professor who truly treated me like an adult which inspired just as much fear as it did motivation. He provided a plethora of pre-lecture videos to help us learn the subject, but what we did with that information was completely up to us. He taught the lesson, but it was up to us to learn, and that is where his greatest strength lies: his ability to inspire students to pursue the subject beyond the classroom. That is how I found myself in a special topics CHEM 2801 course and why I entered his office during the later parts of Spring 2019.

I see my membership of the Evans Research Group as the culmination of the lessons Dr. Evans taught me to that point. I had redefined my habits and myself, and I had learned to be an intelligent, efficient, and gritty Georgia Tech student. Now, it was time that I proved it in an unscripted setting, making a real impact with real people. As fate would have it, the project focused on why so many students struggled in organic chemistry classrooms. I joined during the data analysis portion, transcribing and coding multiple interviews in addition to applying some basic statistical analyses, and it was here that I learned why his methods differ so greatly from so many other faculty. Passionate is the first word I would use to describe him but second, is perceptive. It was clear to me in that moment that he knew exactly where this research was going: there were paths of thinking students used, cutting corners closer and closer until they became straight, missing the point entirely and he wanted to
investigate where the students went after finding themselves going in the wrong direction, halting it from the start rather than 8 weeks into a semester. In so doing, he taught those of us in the group to see the world of education as he saw it and where it was going from here. Even while we were investigating the cognitive pathways of the students, he was still teaching us exactly the way he always had: teach but leave it up to the student to learn and investigate further, to take advantage of that ingrained want to right ourselves and use it to sculpt the students’ development. Dr. Evans does not want only his students to solely pass a course; he aims to develop them for success in life beyond the classroom, to apply and perceive rather than just use and see. This growth is not painless, but the most valuable things in life seldom come easy. It is these experiences that shaped me into the person I am today, that other faculty saw within me, and founded my personal teaching philosophy and put our findings into action within a different field.

With these things in mind, I fully endorse the man to whom I attribute all of my collegiate success, who has supported my endeavors from my first day, and to whom I owe a debt of gratitude that I can never fully repay: Dr. Michael Evans. Thank you for your time.

Sincerely,

Chandler Avery Watson
Chemistry Undergraduate | Class of 2021