

January 4, 2017

Dear CETL Awards Committee,

It is my great pleasure to nominate **Dr. Mary E. Peek**, for the CETL Undergraduate Educator Award. Dr. Peek is an exemplary candidate because of her excellence in teaching, educational innovation, and her passion for undergraduate education. She joined our School approximately 15 years ago to teach the undergraduate biochemistry laboratory courses and to manage the biochemistry teaching laboratories. In response to her obviously exemplary talents and dedication, her instructional role subsequently expanded to the teaching of other courses, including two junior-senior level biochemistry laboratory courses that are required for all biochemistry majors, general chemistry for our freshmen, and a majors-only section of GT 1000. In addition, Dr. Peek organizes formal and ongoing TA training each semester, is the academic advisor for a large number of undergraduate biochemistry and chemistry majors, mentors students in undergraduate research projects, and serves on several committees including the departmental Undergraduate Education Committee and the institute-wide Chemical Safety Committee. I will elaborate briefly on contributions to courses that she has taught, undergraduate student mentoring, and professional activities that have impacted undergraduate education beyond the Georgia Tech community.

Teaching Excellence. Biochemistry Laboratory I and II (CHEM 4581 and 4582) are the primary courses in which students learn fundamentals of conducting experimental biochemistry. Dr. Peek has been the sole instructor of both courses for the last 15 years. She excels at making biochemistry come alive for her students through both her personal style and her curriculum design. She has recently embarked on an exciting revision of almost the entire biochemistry lab curriculum to refresh its emphasis on modern techniques, relevant problems, and training relevant to the students' interest in biomedicine. Here are three examples of experiments designed and implemented by Dr. Peek for hundreds of students each year.

- One of her most popular experiments is a mock crime scene investigation. Skills of analytical chemistry, data analysis, and critical thinking are taught as students examine forensics data that was presented during the O.J. Simpson trial. Students critically review the data in a think-pair-share activity in the lecture, then apply their analytical skills in the laboratory to determine which suspect's DNA was present at the scene.
- The Disease Outbreak Lab, in which students assume the role of a researcher at the Centers for Disease Control and Prevention. Students test mock samples from "patients" in cities throughout the US in an enzyme-linked immunosorbent assay (ELISA) – an experiment used to detect the presence of antigens such as Ebola, HIV, or influenza. From the data they obtain, students are able to recommend which city would need to be quarantined due to detection of a virus outbreak. Although innocuous biochemicals are used for the purpose of teaching, students use the same techniques widely used in the field for detecting infectious agents.
- The Genetically Modified Organisms (GMO) lab teaches students how to extract DNA from natural sources, amplify the genetic material using the polymerase chain reaction, and separate DNA using gel electrophoresis – all widely used experimental techniques for biochemistry and molecular biology at every level. Students choose the natural material to study, enhancing their interest, and broader issues are also emphasized, such as human health, agriculture, biotechnology, the environment, scientific ethics, and world hunger.
- As a culminating experience in Biochemistry Laboratory II, students conduct a short-term research project. For many years it was feasible for Dr. Peek to require each to work independently on a research topic proposed by the student. However, increasing enrollment made this impractical, so Dr. Peek now facilitates group projects on topics that she proposes. A benefit to the new format is that it enables students to practice

working in teams on a much deeper level than most science majors have had a chance to do previously. Group projects give students a platform to learn how to communicate expectations to teammates, design and execute problem solving strategies in a team, formulate hypotheses, minimize and/or resolve conflict, and give a professional scientific presentation.

Educational Innovation. At the start of Dr. Peek's tenure at Georgia Tech almost 17 years ago, the resources available to her were quite limited. She faced a major challenge in trying to develop a cutting edge curriculum that will prepare students to excel in graduate school, medical school and the work force. While successfully pursuing internal Technology Fee Funds, Dr. Peek has been quite successful at winning external funding as well, including two grants for educational innovation from the National Science Foundation. Her *Optical Spectroscopy* project brought resources for the purchase of two research-grade fluorometers for the design and implementation of experiments on protein unfolding, ligand binding, and enzyme activity. This project exposed students at the freshman level to real biochemistry through the study of the impact of metals on the fluorescence of porphyrins – an example of a class of molecules that bind to proteins to aid their function. Dr. Peek's recent NSF-sponsored *Threading Flavones* project allowed her to create interconnected experiments between upper division laboratory courses to help students retain information and de-compartmentalize their thinking. This program also enabled her to host an all-expense paid two-day summer workshop at Georgia Tech in 2014 for 31 faculty members from 21 small liberal arts colleges, community colleges and universities across seven states. The grant also funded the employment of 11 undergraduates over five years, giving them research experience outside of a normal classroom setting. In total, Mary has been instrumental in bringing more than \$500,000 to the School of Chemistry and Biochemistry for educational improvements for courses throughout the curriculum.

Student Mentoring. Dr. Peek has taken advantage of several different platforms to mentor undergraduate students. As an academic advisor, she meets with as many as 50 undergraduates during the Fall and Spring semesters to guide them in course planning toward graduation. Some of these students also discuss future careers in biochemistry, health-related careers, pharmaceutical research, pharmacy school, and teaching, among other career paths with her. She routinely shares her former experiences as a Senior Research Biochemist at Merck & Co. with students to make them aware of opportunities that they might not have considered. Both students and administrators have praised our School as a great model for quality undergraduate advising as a result of the personalized attention that Dr. Peek and her coworkers give to our majors.

Passion. Teaching is a calling for Dr. Peek. Her passion is evident in how she manages the biochemistry teaching laboratories. She works very hard, although she makes it look easy, to maintain an orderly work environment and to train her teaching assistants to set high, yet achievable standards of excellence. Throughout her career Dr. Peek has worked tirelessly with undergraduates to improve holistically – as technical practitioners, writers, job seekers, diligent workers, and human beings. Because she sees students firsthand in the laboratory, she also is always on the lookout for particularly promising young researchers, and connects them to research opportunities in laboratories throughout the biotechnology quad. All of her efforts stem from her desire to bring out the best in her students.

Professional Activities. Dr. Peek has participated in several initiatives to promote the development of strong educational designs and learning aids. She was twice invited to review grants for NSF's Division of Undergraduate Education for their Course, Curriculum and Laboratory Improvement (CCLI) grant competitions on Educational Materials Development and National Dissemination. Her assignment was to evaluate interdisciplinary grant proposals within STEM fields.

901 Atlantic Drive, NW, Atlanta, Georgia 30332-0400 USA
OFFICE: MOSE 2100M PHONE: 404.385.0906 FAX: 404.385.0973
EMAIL: mgfinn@gatech.edu www.FinnLabResearch.org

Dr. Peek has also worked closely with a variety of publishers on textbook editing and book reviews in biochemistry – endeavors that impact broad populations in undergraduate chemical and biochemical education. In 2003 and 2004, she reviewed two of Rodney F. Boyer’s laboratory texts – *Techniques in Experimental Biochemistry* and *Modern Experimental Biochemistry*, both of which were published by Benjamin Cummings. She was hired by Prentice-Hall in 2006 to review *A Survival Guide for Biochemistry Laboratory: Practical Techniques* by Kelli Slunt. In 2007, she reviewed Melanie Cooper’s *Cooperative Chemistry Laboratory Manual*, 3rd edition published by McGraw-Hill. In 2011, she reviewed the Oxford University Press text *Biochemistry: The Molecular Basis of Life*, 5th edition by Trudy and James McKee. Her most long-standing collaboration was with John Wiley & Sons publishing company. In 2011, Dr. Peek served as a technical reviewer for the 3rd edition of *Biochemistry for Dummies*. She later participated in a virtual focus group on comprehensive texts for college undergraduate biochemistry. The following year, Wiley hired her to prepare chapter-by-chapter PowerPoint lecture slides corresponding to the 3rd edition of *Essential Biochemistry* by Charlotte W. Pratt and Kathleen Cornely. The lecture slides serve as a faculty resource on WileyPLUS – an online teaching platform for students and instructors.

In summary, Dr. Peek has been a force at Georgia Tech and nationally in chemistry and biochemistry education throughout her 17-year career with us. Her contributions have been numerous, benefitting thousands of students as well as colleagues in and outside of Georgia Tech and members of the chemical education community at large. For these reasons, I am honored to nominate her with great enthusiasm for CETL’s Undergraduate Educator Award.

Sincerely,



M.G. Finn, Ph.D.
Professor and Chair, School of Chemistry & Biochemistry
James A. Carlos Family Chair for Pediatric Technology

901 Atlantic Drive, NW, Atlanta, Georgia 30332-0400 USA
OFFICE: MoSE 2100M PHONE: 404.385.0906 FAX: 404.385.0973
EMAIL: mgfinn@gatech.edu www.FinnLabResearch.org



Georgia Institute of Technology

School of Chemistry and Biochemistry

January 20, 2017

Dear Awards Committee,

I am writing in the strongest possible support of Dr. Mary Peek for the GT-CETL Undergraduate Educator Award. **Dr. Peek is a true educator, whose contributions to students at Georgia Tech go well beyond the classroom.**

Dr. Peek re-joined Georgia Tech in 2000 as the Biochemistry Lab Coordinator. She is a product of Georgia Tech, completing her PhD in Biochemistry in 1995. She initially followed a traditional path with a postdoctoral position and then a job in industry (Merck) before returning to Georgia Tech. In 2009 she was promoted to Senior Academic Profession. **Observing Dr. Peek in the classroom, it is clear that teaching is her passion.** She has a unique style that combines a no-nonsense approach with unlimited support of the students. I have observed her lectures prior to Biochemistry I and II labs multiple times. I am always impressed by her ability to call students out on material they should know, but without a trace of negativity. And the students love her (ANAK 2008). **She is able to create a real sense of responsibility for the material, while making it clear that she supports each student.** Outside of the classroom, she is a mentor to many students and works hard to pair them with research groups to gain research experience.

In addition to her direct work with students, Dr. Peek has demonstrated exceptional innovation in how biochemical concepts are taught. Dr. Peek worked with a group of Chemistry and Biochemistry faculty to organize a common thread through the curriculum to illustrate to students how concepts taught in one class carry through to other classes using a specific type of molecule, flavones, as the example. **This project was award \$200,000 from the NSF in the Division of Undergraduate Education.**

Overall, Dr. Peek is an outstanding educator in terms of her classroom teaching, mentoring of students, and development of new curriculum. Georgia Tech and the School of Chemistry and Biochemistry are fortunate to have her back at Georgia Tech as an Academic Professional.

Sincerely,

Christine Payne, Ph.D.
Director of Teaching Effectiveness, School of Chemistry and Biochemistry

School of Chemistry and Biochemistry
Atlanta, Georgia 30332-0400 USA
PHONE 404•385•3125
FAX 404•385•6057
EMAIL christine.payne@chemistry.gatech.edu

Teaching is my calling in life. I love it! The classroom and laboratory settings feel like home to me. I genuinely enjoy engaging students and helping to open their eyes to the beauty of biochemistry. I also care deeply about students as whole human beings and contributors to society. My desire is to champion students out into the world and into their future careers. For example, I am delighted to serve as the advisor for the Pre-Student Osteopathic Medical Association (Pre-SOMA) – a new club initiated last Fall by students from my GT 1000 class. I believe that teaching and learning go hand in hand. After a nearly 17-year teaching career at Georgia Tech, my motto is still: *“I have not taught until students have learned.”*

Student engagement and the commitment to go “above and beyond” are two signs that my teaching is positively impacting student learning. Many of my students have left an indelible impression on me in this regard. I remember Amy from many years ago, who took the initiative to contact researchers at another university for materials needed to pursue her project for my class and compelled them to donate to her. She designed a project that was ambitious, and worked extensively outside of class time with a TA in a research laboratory in order complete it. The teaching and her extraordinary commitment had a synergistic effect on her learning. Gloria became interested in law during my class and began to struggle to see the relevance of the biochemistry laboratory courses to her future. I convinced her to view scientific data collection like building a case for a future client. That simple analogy transformed her attitude and sent her soaring in my class. Chris, shared with me that his training from my classes helped him directly in his first year graduate course at Cornell. Another former student, Ignacio, recognized similarities between calculations done in my class with dosing level determinations for patients in one of his medical school courses. He emailed me with this feedback to inspire other pre-health track students. I get the benefit of seeing many of my students transform into higher-level thinkers because of the interactions that occur from my teaching, which is a joy for me. I feel that I have succeeded at teaching when students no longer regard themselves as “students,” but rather budding scientists.

Laboratory teaching is unique because it provides me with an opportunity to train students in professional scientific practice. Because some of our experiments involve the use of modified DNA, students in my courses participate in an official Institutional Biosafety Committee protocol. As a result, we have partnered with Environmental Health and Safety to offer customized General Biosafety and Recombinant DNA Technology training as part of my courses. Students in my courses gain professional experience using LabArchives software, an industry leader in electronic laboratory notebook maintenance. One of the unique features of my courses is the extensive evaluation of student performance done weekly by teaching assistants. Students are evaluated on promptness to class, preparedness, industriousness, intellect, reliability, and cooperation. Additional comments, such as observations of student behaviors, accompany the student performance rubric. As a result, we have a database of feedback on students that can be used to teach students how to improve their work ethic and to serve as a basis for strong, supportive letters of recommendations. The criteria were based on common attributes on which medical schools seek comments in letters of evaluation. In some cases, the data has also been used to identify and promote talented students to pursue undergraduate research opportunities. Georgia Tech students are particularly rewarding to teach, in part because they embrace rigor and academic challenge, and are highly goal-oriented. I am so grateful to have had the privilege of building a legacy here.

ILLUSTRATIONS OF TEACHING EXCELLENCE

Mary Elizabeth Peek, Ph.D. | School of Chemistry and Biochemistry | Spring 2017

1. Course Development

Biochemistry Laboratory II (CHEM 4582) was a course developed to highlight biophysical approaches for investigating biological macromolecules and their phenomena. Experiments developed for CHEM 4582 involve fluorescence, absorption, circular dichroism spectroscopy, and crystallization – methods that are quintessential to contemporary biochemistry. Students investigate protein folding equilibria, ligand binding, and enzyme kinetics and inhibition, among other studies. From 2000 – 2010, students spent about half of the semester conducting independent projects on topics of their choice. As the enrollment increased, independent projects were replaced with pre-defined group projects.

Chemistry Seminar (CHEM 4601) was a course developed to teach students how to read and critically review the biochemistry research literature. Students would present papers and engage in class discussions about research articles. The beauty of CHEM 4601 is that connections could be made between experiments conducted in the Biochemistry laboratory courses and real-world applications in the context of broader topics. Students were able to recognize the significance of their laboratory training as a result of reading about how biochemistry is conducted to solve complex problems.

2. Pedagogy Highlights

LABORATORY EXPERIMENTS

Here are some examples of experiments that highlight the relationship between biochemistry and human health, which is of interest to many of our majors who wish to pursue future careers in medicine.

- *The GMO Project – students extract DNA from a natural product of their choice, use the Polymerase Chain Reaction (for which Georgia Tech alumnus, Kary Mullis, won the 199X Nobel Prize in Chemistry), and perform agarose gel electrophoresis to determine whether the test sample contains a genetic modification. Students present their results in an oral presentation.*
- *The Disease Outbreak study – students conduct an enzyme-linked immunosorbent assay (ELISA) to determine whether any mock samples from throughout the US contain an antigen representative of a deadly and highly contagious virus. The experiment mimics the type of study that would be conducted by researchers at the Centers for Disease Control.*
- *The CSI laboratory experiment – students test DNA from a mock crime scene and from hypothetical suspects to determine which, if any, was present at the crime scene.*
- *The Lipid laboratory experiment – students extract the fats out of chicken and quail eggs and conduct a variety of clinical chemistry experiments to determine the level of total lipids, cholesterol, and phospholipids present in each sample.*
- *The Carbohydrate laboratory experiment – students test a series of mock patient blood sera for blood glucose levels and determine whether the patient shows signs of diabetes.*

“THREADING” – is a proof-of-concept NSF project on the integration of learning across the organic synthesis and biochemistry laboratory courses. Students in the organic chemistry laboratory courses synthesize flavonoids while students in Biochemistry Laboratory II test the flavonoids for their activity

ILLUSTRATIONS OF TEACHING EXCELLENCE

Mary Elizabeth Peek, Ph.D. | School of Chemistry and Biochemistry | Spring 2017

against an enzyme that is a marker for cancer. Students also correlate the potential impact of flavonoids on PKC activity and deduce structure-function relationships using free molecular modeling and molecular visualization software. The use of “threading” was employed as a strategy to promote retention of learning, critical thinking, and a heightened appreciation for the relevance of chemistry and biochemistry to human health.

PROJECT-BASED LEARNING (PBL) – was implemented in Biochemistry Laboratory II (CHEM 4582) in an effort to provide all of our Biochemistry majors with a short-term undergraduate research experience. PBL has a variety of impacts on student learning from defining focus areas for future graduate study, to fostering publications, to development of professional and interpersonal skills development.

3. Impact on Student Learning – Student Feedback

Thank-a-Teacher Emails from Students

Thank you for all your help as an advisor and as a teacher! Your teaching style is relatable and clear, which makes Biochemistry (and lab) more approachable, exciting, and fun. So thank you for keeping it #TeamNoDrama!

Shane Mudrinich | CHEM 4581 | Fall 2015

Thank you so much for all the hard work you’ve put in this semester! You’re one of the most thorough teachers I’ve ever had in a lab course. I always feel like I learn something walking out of your class and lab. Keep up the great work! ☺

Shannon McGeary | CHEM 4581 | Spring 2015

Dear Dr. Peek,

I started my college with the dream of becoming a medical scientist; however, over time, I lost my interests from the research. However, through your enthusiasm in this field and ability to challenge students in just proper ways, I am starting to appreciate lab work for once again.

Even though I may not work in the lab, I plan to continue my biochem background with the international relations in the field of biochemical security and global health.

I appreciate you for giving us flexibility in our work even at this level to truly think through what we are doing rather than following a recipe.

Best wishes, Meghna

Meghna Bharucka | CHEM 4581 | Fall 2012

Dr. Peek, thank you for the last two semesters of your bchem lab class. I learned a lot and it provided a good insight as to the research I would like to focus on in the future.

Anonymous | CHEM 4582 | Fall 2012

Thank you so much for being a wonderful instructor. I am so glad I got to have you as my professor and I feel very blessed to have met you. Your lab course was by far one of my favorite classes at Tech

ILLUSTRATIONS OF TEACHING EXCELLENCE

Mary Elizabeth Peek, Ph.D. | School of Chemistry and Biochemistry | Spring 2017

and one of the courses I learned the most from. I love your teaching style and I can tell that you sincerely care about your students and want us to learn the material. Please continue doing what you do! I am positive there are more students out there who are grateful to have a teacher like you! I will be in touch!

Chiamaka Ukachukwu | CHEM 4581 | Spring 2011

Course-Instructor Opinion Surveys for CHEM 4581 and CHEM 4582

CHEM 4581 – Spring 2016

Instructor Greatest Strength

Enthusiastic about the subject. Really wants students to learn and have fun learning.

very clear and reasonable in the expectations

The lectures were fantastic. Interesting background with clear communication. Kept me focused an entire hour on a Monday which is an amazing feat.

Presented material in a clear and engaging fashion.

The instructor always highlight the confusing or the difficult part of the experiment during lecture.

She was willing to sit down with me for hours and talk about how I could improve my lab report writing skills. It was invaluable in my overall course grade and I couldn't have done it without her commitment to helping me succeed!

GREAT communicator. Very easy to understand the logic of her lectures, and the language of biochemistry was made very approachable through the use of great analogies and student interaction. Very respectful of her students, with high expectations.

She is very approachable and kind. She is good at comforting students when things go wrong (ie, a experiment that takes 5+ hours to complete that ends up not working can be very frustrating). She has excellent organizational skills, which helped translate into smooth-sailing for the weekly lab experiments.

CHEM 4582 – Fall 2016

Instructor Greatest Strength

CHEM 4582: She is very responsive to emails and is always willing to help clarify a particular topic or issue with a lab report.

CHEM 4582: She was always enthusiastic about teaching the course and letting students think as scientists

CHEM 4582: very knowledgable and was very clear in what was expected

CHEM 4582: clear about expectations for course

CHEM 4582: Dr. Peek's greatest strength is her knowledge of the material, and her ability to effectively communicate that material to students who are learning much of it for the first time.

CHEM 4582: Dr. Peek is straightforward, keeps things low-drama, treats everyone with respect and is an overall awesome professor.

CHEM 4582: Dr. Peek's greatest strength is being straightforward and explaining things in as much detail as possible without being overwhelming or unnecessary.

CHEM 4582: Very good at delivering and explaining material. Approachable for questions and thoughts.

CHEM 4582: Dr. Peak (sic) is a very effective teacher.

CHEM 4582: Dr. Peak (sic) is extremely effective at explaining biochemical techniques that were useful in the laboratory.

CHEM 4582: Class PPT are posted, and the schedule is tightly followed. Details are given.

CHEM 4582: The details are well explained for each lab.

ILLUSTRATIONS OF TEACHING EXCELLENCE

Mary Elizabeth Peek, Ph.D. | School of Chemistry and Biochemistry | Spring 2017

CHEM 4582: Communicates scientific knowledge in an extremely relatable way. Very available for feedback and questions of students, very respectful of student input

CHEM 4582: enthusiastic and very good at explaining things

CHEM 4582: easy to approach. Always had answers to the questions I had

CHEM 4582: Dr. Peak (sic) is a very clear instructor and very willing to work with students.

CHEM 4582: She was a very good communicator

CHEM 4582: Very good communicator

CHEM 4582: Passion

4. Awards and Honors

A. ASBMB Education Fellow	2016-2017
B. ANAK Award	2008
C. Class of 1969 Teaching Fellow (Honorary)	2004-2005
D. Thank-a-Teacher Recognitions	Multiple Semesters

5. Funding for Undergraduate Education

NATIONAL SCIENCE FOUNDATION	2011-2016
<i>Threading Flavones in the Undergraduate Chemistry Curriculum</i>	\$199,848
<i>Mary E. Peek (Final PI), David M. Collard, Stefan A. France, and David Jenson</i>	

NATIONAL SCIENCE FOUNDATION	2002-2004
<i>Optical Spectroscopy in the Undergraduate Laboratory Curriculum</i>	\$30,062
<i>Mary E. Peek (PI), Toby F. Block, and Loren Williams</i>	

GEORGIA TECH – TECHNOLOGY FEE FUNDS

Award Year	Courses Impacted	Award Amount
2013	<i>Synthesis Lab I and II, Organic Chemistry Lab, and Biochemistry Lab I and II</i>	\$37,494
2012	<i>Analytical Chemistry Lab, Physical Chemistry Lab, Biochemistry Lab I and II, and the Advanced Chemistry Lab</i>	\$49,299
2009	<i>Quantitative Analysis Lab, and Biochemistry Lab I and II</i>	\$57,860
2007	<i>Inorganic Chemistry Lab I, and Biochemistry Lab I and II</i>	\$52,094
2002	<i>Technology Fee Funds for Biochemistry Lab I and II</i>	\$26,795
2001	<i>Biochemistry Lab I and II</i>	\$25,514

ILLUSTRATIONS OF TEACHING EXCELLENCE

Mary Elizabeth Peek, Ph.D. | School of Chemistry and Biochemistry | Spring 2017

6. Technical Reviews and Production of Educational Materials

SCIENCE TEXTBOOKS (SELECT REVIEWS)

- Essential Biochemistry*, 4th edition by Charlotte Pratt and Kathleen Cornely 2016 –
Publisher: John Wiley & Sons 2017
- Producing updates of online PowerPoint lectures for instructor use on WileyPlus
 - Producing updates of clicker questions for instructor use on WileyPlus
 - Writing new student learning assessment question for new content in the 4th edition
- U Can: Chemistry I for Dummies* by J.T. Moore, C.R. Hren, and P.J. Mikulecky 2015
Publisher: John Wiley & Sons
- Performed a technical review of the entire text
- Essential Biochemistry*, 3rd edition by Charlotte Pratt and Kathleen Cornely 2012
Publisher: John Wiley & Sons
- Produced online PowerPoint lectures for instructor use on WileyPlus
- Biochemistry: The Molecular Basis of Life*, 5th edition by Trudy McKee and James R. McKee 2012
Publisher: Oxford University Press
- Performed a review questionnaire on the entire text
- Essential Biochemistry*, 2nd edition by Charlotte Pratt and Kathleen Cornely 2011
Publisher: John Wiley & Sons
- Performed a technical review of the entire text
- Biochemistry for Dummies*, 2nd edition by J. T. Moore and R.H. Langley 2010 –
Publisher: John Wiley & Sons 2011
- Performed a technical review of the entire text

GRANT REVIEWS

- National Science Foundation, Division of Undergraduate Education 2002 and
Conducted reviews of interdisciplinary grants submitted to the Course, Curriculum, 2003
and Laboratory Improvement Grant Program for Educational Materials Development

CENTRIFUGATION TRAINING VIDEO: <https://www.youtube.com/watch?v=AcGr6kEWP0w>

7. Select Presentations on Chemical Education

Poster – Peek, M.E., Braga, R.A., Stephens, A.B., Martin, J.W., Zhou, Z., Hosford, C., France, S.A., Collard, D.M., Majerich, D.M., and Madden, A. “*Threading Flavones* as an Undergraduate Laboratory Teaching Strategy for Interconnecting Chemistry and Biochemistry” presented at the American Society for Biochemistry and Molecular Biology (ASBMB) Special Symposium on Transforming Undergraduate Education in Molecular Life Sciences. July 30 – August 2, 2015; Missouri Western State University (St. Joseph, MO).

ILLUSTRATIONS OF TEACHING EXCELLENCE

Mary Elizabeth Peek, Ph.D. | School of Chemistry and Biochemistry | Spring 2017

Poster – Peek, M.E., Majerich, D.M., Margulieux, L., Stephens, A.B., Braga, R.A., and Madden, A. “Teaching College Faculty to Interconnect Chemistry and Biochemistry Experiments via the ‘Threading Flavones’ Project” presented at the Gordon Research Conference on Chemical Education Research & Practice: Chemistry Education as an Agent in Global Progress. June 21-26, 2015; Bates College (Lewiston, ME).

Workshop Organizer – Threading Flavones through the Undergraduate Chemistry Laboratory Curriculum: Summer 2014 Workshop at Georgia Tech. July 21-23, 2014; Atlanta, GA.

Workshop Host – Threading Flavones through the Undergraduate Chemistry Laboratory Curriculum: Summer 2012 Workshop on Biochemistry at Georgia Tech. July 16-17, 2012; Atlanta, GA.

Poster – Peek, M. E., Duraj-Thatte, A. M., and Bhatnagar, A. “Binding of Flavones to Protein Kinase C: A Molecular Modeling Study for College Undergraduates” presented at the Experimental Biology 2012 conference. April 2012; San Diego, CA.

Workshop – “Assessing Student Performance in an Undergraduate Biochemistry Laboratory” presented at the 2009 Process Education Conference at Gaston College. July 8-10, 2009; Dallas, NC.

Speaker – “Enhancing Undergraduate Education Using Optical Spectroscopy” given at the 55th Southeast Regional Meeting of the American Chemical Society. November 16-19, 2003; Atlanta, GA.

Workshop – “Development of a Problem-Based Biochemistry Laboratory Curriculum” given at "PBL 2002: An International Conference on Problem-Based Learning in Higher Education". June 16-20, 2002; Baltimore, MD.

Workshop – “X-ray Crystallography” workshops given at the NSF Centers for Workshops in the Chemical Sciences (CWCS) "Molecular Genetics and Protein Structure-Function" workshop. August 2001, 2002; Atlanta, GA.

To Whom It May Concern:

I am writing this letter to recommend as highly as possible Dr. Mary Peek for the 2016-17 GT-CETL Undergraduate Educator award. My name is Shane Mudrinich, and I am a fourth-year Biochemistry (Pre-Health Sciences) major. I know Dr. Peek very well, as she has been my Academic Advisor throughout the entirety of my undergraduate experience here at Georgia Tech and has also been my professor in the Biochemistry Laboratory 1 and 2 courses. I have thoroughly enjoyed all of my experiences with Dr. Peek in these capacities and hold her in the highest regard both as an educator and as an individual.

As my Academic Advisor, Dr. Peek has always been very considerate of my needs and interests as a student. She helped me choose course sequences that would be beneficial to my academic career and decrease my stress levels as much as possible. She gave me excellent advice about programs I wanted to pursue, including the Pre-Health track and the International Plan. And of course, while she fulfilled her requisite professional duties, she also invested her time in me every meeting, endeavoring to learn more about me as a person. In our advising sessions, she consistently kept a warm, comfortable rapport with me that affirmed my decision to study Biochemistry at Georgia Tech. She reassured me in moments of doubt and motivated me to continue my studies and my medical career path. There were a few times I wanted to switch out of my major but felt reinvigorated to persevere after meeting with Dr. Peek.

As an educator, Dr. Peek's excellence is nearly unmatched by any professor I've had in the School of Chemistry and Biochemistry or in the larger landscape of Georgia Tech. Dr. Peek's instructional style takes advantage of colloquial expressions and vivid analogies to tailor her lesson plans to her students; she meets her students where they're at. Her lectures were often humorous and engaging, taking complex biochemical concepts and turning them into approachable, understandable ideas. Our classes all rallied around her sense of humor, fomenting the creation of interpersonal relationships among the students. Her demeanor in lab emphasized practicality and technical skill without introducing undue stress and while still providing intriguing ways to learn biochemistry, such as staging a CSI lab. She also encouraged our innovation and creativity. When my lab partners and I sought to recreate a potentially hazardous Harvard experiment on microevolution, she ensured that we went through all appropriate IRB and safety steps to help position us for success without ever dismissing our ideas out of hand. Though that experiment failed, she still gave us free rein to think outside of the box and practice what science is all about: creativity.

In these and many other ways, I've known I could depend on Dr. Peek to have my best interests at heart, whether that was advising me, considering my needs in her classes, or writing me a recommendation for medical school. When I ran a successful campaign for the Student Government Executive Ticket, she really championed me in front of my classmates without my prodding and even keeps one of our campaign stickers on her desk. It's been evident to me that she truly cares, and I know that my classmates wholeheartedly agree. I am confident there is not another professor as qualified or deserving of this honor. She invests in and takes pride in her students, and I hope that this letter and this award can be just one small symbol of the pride her students take in her.

In White & Gold,
Shane Mudrinich

To Whom It May Concern:

My name is Shan Jing and I am a fifth year undergraduate student major in Biochemistry. I am excited that Dr. Mary Peek has been nominated for the GT-CETL Undergraduate Educator Award. I would like to share my experience mentored by Dr. Peek with you to show my gratitude and support for Dr. Peek.

As my advisor since my second year at Tech, Dr. Peek has been extremely instrumental for my lift here, both academic and non-academic. As a transfer student and an international student, I was overwhelmed by all the new things I had to adjust to when I first got here. Everything was new and I found it challenging fitting myself into Tech's learning environment. I had to take a semester off after my first year here at Tech because a family loss and the stress from my coursework. I remembered when I was readmitted to Tech after my gap semester, Dr. Peek was assigned to be my advisor. Dr. Peek was greatly supportive, she talked with me on the things that I was suffering, provided suggestions and helped me get through the adjusting process. I mentioned to her that I was experiencing a hard-time fitting myself to Tech's learning pace and it was challenging to for me to catch up. She kept encouraging me that once I get through the hard days and get familiar to the learning pace at Tech, I will be doing great. It was her who advised to slow down my learning pace and help me designed and constructed my learning plan. She helped me adjust my coursework and balance my schedule. Ever since then, Dr. Peek has always been helpful in reviewing and adjusting my schedule, and she helped me with any difficulties regarding my study here at Tech with great support.

Dr. Peek is very knowledgeable and proactive as an instructor. I have taken both the Biochemistry laboratory I and II taught by her. She is a great teacher. She is extremely good at conveying knowledge and ideas. She always talks about the important things without any distraction. She knows every mistake that previous students made for experiments and she is good at helping us avoiding them. She has a strict standard for science. She taught us how to write a good scientific report and prepared us for our future potential careers. She keeps emphasizing the importance of good scientific standards and format, she lets us know how significant it is for keeping a good notebook and writing a good lab report when performing scientific research. Dr. Peek is also a great researcher. She combined theoretical knowledge with practical issues and designs great experiments for students. For example, I remembered that last experiment of Biochemistry laboratory I was a fun experiment motivated by her. We were encouraged to tested the reliability of genetically modified organism(GMO)-free product on the market. Not only we learned how to use molecular biology techniques from books for assays, we also applied the knowledge we learned for practical real-life projects.

I feel like I have rambled here and there are much more I wish I could share. However, these will converge to my gratitude to Dr. Peek for her guidance and all here supportive advises. I cannot agree more that the GT-CETL Undergraduate Educator Award is a well-deserved award for Dr. Peek, and I sincerely hope that my letter could serve as a convincing support. Thanks!

Kelly M. Glennon
3220 Brownwood Drive
Snellville, Ga. 30078

1/25/2017

To whom it may concern:

I would like to recommend Dr. Mary Peek for the CETL Undergraduate Educator Award. Dr. Peek was my Biochemistry Laboratory Program Coordinator for 2016. She displays an exemplary mastering of Biochemistry and a keen ability to form personal connections with her students.

Looking back on my academic career, it's clear to me that Dr. Peek has been the most influential professor I've had both for my learning process and future prospects. Her candor is her strongest attribute as it is both abrupt and inspiring. She's realistic about outcomes, but never discouraging; if your current path isn't attainable she is willing to work through a plan to get you there, or compose an alternate route for success.

During my Senior year, a semester before graduation, it became necessary for me to undergo an extensive surgery with implications which could potentially post pone my graduation. It was during this time, that I truly became aware of Dr. Peek's compassion for her students and commitment to education. Upon hearing my diagnosis, Dr. Peek was actually the first person I called, mildly in shock and only able to process at that moment that I was going to miss my lab. I began to stumble over my words and try to explain the situation. She interrupted me telling me that my first priority was my health and that she'd help me in whatever way she could. She also kindly reminded me that I should call my own family. Her words were compassionate while boisterously confident and oddly reassuring. She went above and beyond to keep track of my medical appointments and plan for me to be able to keep track of my learning objectives by skyping into labs. The aspect that was truly admirable was that though she was compassionate about my circumstance she did not sacrifice my education. With her guidance, I was able to complete all aspects of the lab, mastering the course skills, despite my prolonged absence.

After completing Dr. Peek's courses, I am confident in my ability to continue on to higher schooling as well as the workforce. I believe Dr. Peek has been my most effective professor, because she combines an academic approach with knowledge of what skills should be cultivated for hands on efficiency. It is due to her compassion for her students and passion for her subject, that I am proud to recommend Dr. Mary Peek for the CETL Undergraduate Educator Award.

Sincerely,

Kelly M. Glennon