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# Application Summary

## Competition Details

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**Competition Title:** 2023 Innovation in Co-Curricular Education

**Category:**

**Cycle:**

**Submission Deadline:** 02/12/2023 11:59 PM

## Application Information

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**Submitted By:** Michele Yager

**Application ID:** 9763

**Application Title:** Pamela Pollet

**Date Submitted:** 02/7/2023 1:13 PM

## Personal Details

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**Applicant First Name:** M. G.

**Applicant Last Name:** Finn

**Email Address:** mgfinn@gatech.edu

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### Primary School or Department

School of Chemistry and Biochemistry

**Primary Appointment Title:** Professor and Chair

## Application Details

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### Proposal Title

Pamela Pollet

# 2023 CTL Innovation in Co-Curricular Education Award Nomination

## **“Talk Like a Scientist (but not too much)”**

Dr. Pamela Pollet (School of Chemistry & Biochemistry), Dr. Eric Lewis (Writing and Communication Program) and Dr. Josh Aronson (Eversheds Sutherland LLP)

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January 23, 2023

To Whom It May Concern:

I am delighted to nominate Dr. Pamela Pollet for the CTL Innovation in Co-Curricular Education Award for her creation of a 3-credit project design course called CHEM 4803, "Talk Like a Scientist (but not too much)". As you will read in the accompanying materials, the inaugural edition of this course presented in Fall, 2022, was a wonderful collaboration between Dr. Pollet, Dr. Eric Lewis of the School of Literature, Media and Communication and the Writing and Communication Program, and Dr. Josh Aronson, an Atlanta-area patent attorney.

My laboratory does what we hope and believe is important work to improve the human condition. But I'm not sure that anything we could do would be more important than the goals of Dr. Pollet's course: to help students understand complicated real-world problems that have a scientific basis (most of them do) and *communicate* information and analysis to non-scientists in effective ways. If our experience of the past several years has taught us anything, it is that scientists and engineers must play a larger role in this type of activity in our society. The goals of the course were absolutely exemplary: to help the students (i) consolidate and extend prior knowledge, (ii) develop communication skills, (iii) build scientific literacy and broad societal knowledge, (iv) challenge with in-depth inquiry, analysis and critical thinking, (v) foster inter-personal interactions (peer & faculty), and (vi) encourage creativity. The curriculum blended well-chosen reading assignments, lectures, video content, and a deep dive into case studies to provide information and opportunity for students to learn and practice.

And the course was highly successful, as evidenced by evaluations and comments from the students. I cannot praise Dr. Pollet highly enough for having the vision to put this type of course together, as well as the energy and dedication to have done so with such insight and care. This is liberal arts education in the true meaning of the term, and of the very highest quality. I can only hope that it serves as an example to others among our faculty. Honoring Dr. Pollet in this way would certainly help to do that.

Sincerely,



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



6 February 2023

To the Awards Committee:

I am writing in support of Dr. Pamela Pollet, Dr. Josh Aronson, and Dr. Eric Lewis and their nomination for the CTL Innovation in Co-Curricular Education Award for their course CHEM 4803: Talk Like a Scientist (but not too much).

The challenge of teaching writing is that, unlike math, for example, students come to us at the college level with most of the tools that they need. They know the basic structure of an evidence-based essay, they know how to advance an argument, they know how to organize their ideas, they know grammar and syntax, etc. What our students do not have when they come into our classrooms is a wide range of writing and communication experiences; said another way, our students have not yet had to identify and adapt to the range of communication situations—audiences, purposes, and contexts—that they will have to in their professional lives. English 1101 and 1102 lay the groundwork for learning how to do that but every class they take here at Georgia Tech is an opportunity for students to widen their experience and practice employing their skills. “Talk Like a Scientist (but not too much)” does an excellent job of foregrounding that opportunity through intentional course design that centers communication in multiple genres, styles, and modes. The inclusion of journalistic writing, TED talks, and case studies as objects of analysis and as assignment genres helps students to see the real-life application of the foundational concepts they learned as first-year students; further, that approach helps to encourage knowledge and skill transfer so that students become more agile and adaptable communicators in the future.

A particularly important piece of this course is the inclusion of a dedicated writing and communication specialist. Having before served in a similar capacity myself, I can attest to the many ways that embedded writing instructors enhance learning for students. For one, embedded writing instructors help to ensure that all students in a writing-intensive course receive individual attention and sufficient feedback. As a part of his role in this course, Dr. Eric Lewis, a Professional Consultant in the Naugle Communication Center, both participated in regular class sessions and was available to students for individual consultations. Writing-intensive courses in a disciplinary context present a double-layered challenge for students who are learning new genres, modes, and styles of communication while at the same time mastering new field-specific content/knowledge. Having availability for one-on-one writing support built into a course lowers the barrier for students who are struggling to seek help with their writing and communication projects; it also models for students that writing is not done in a vacuum and that writers should be seeking out feedback and support from others. In my own



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experience, I also found that student learning is enhanced by the collaboration of the course instructors. When I worked as an embedded writing instructor alongside faculty in disciplines ranging from chemistry to economics, we were always learning from one another. Not only did that exchange of knowledge help us to be better teachers but also it allowed us to model for the students how new ways of thinking and of creating knowledge arise from cross-disciplinary collaboration.

Again, I am pleased to have this opportunity to write in support of these instructors and this course. “Talk Like a Scientist (but not too much)” is an excellent example of the kind of co-curricular capstone course that is uniquely possible at Georgia Tech and that prepares our students for a wide range of academic and professional endeavors.

Sincerely,

Caitlin L. Kelly, PhD  
Director, Naugle Communication Center  
School of Literature, Media, and Communication  
Georgia Institute of Technology



I am a fifth-year computer science major and chemistry & biochemistry minor at Georgia Tech, and I took Dr. Pollet and Dr. Lewis's course "Talk Like a Scientist (but not too much)" in Fall 2021. Throughout my time at Tech, this was the most effective, interdisciplinary course which provided my classmates and I with critical skills in communicating technical subjects which we will use throughout our careers. It is with great pleasure that I enthusiastically recommend Dr. Pollet and Dr. Lewis for the Innovation in Co-Curricular Education award.

As a student, I have always enjoyed and valued the importance of chemistry, but as a mathematically-minded person, I could not always say the same about English or policy. Drs. Pollet and Lewis enthusiastically and skillfully crafted and taught the chemistry communication course; by the end of the semester, I felt not only more proficient in communicating technical subjects, but also more appreciative of learning communication and policy skills, especially pertaining to chemistry. Drs. Pollet and Lewis crafted pertinent lecture information coupled with hands-on activities that revealed the applications of communication to a career in chemistry. For example, we learned how to read and write patents - a key to protecting intellectual property - and how to write a journal article about scientific research, which is key to engaging the public in our research endeavors. For each skill we developed, the professors developed an engaging lecture - often involving guest speakers - to demonstrate best practices, important skills, and the relevance of the communication medium. We then mastered the techniques in relevant assignments that never felt like busy work.

My favorite part of the course was our capstone project in the second half of the semester. This project seamlessly integrated the skills we had been learning all semester. Drs. Pollet and Lewis chose for us to hold a town hall on the Sterigenics site, which was accused of spilling ethylene oxide into the atmosphere. Each group of students worked together in roles of differing viewpoints - such as the company, homeowners, or county - to develop and present their case. This project blended learning of chemistry and communication. From the chemistry standpoint, our groups learned how to analyze the environmental impacts of ethylene oxide; such as the reaction mechanism, health impacts, concentration levels, and dispersion methods. From the communications perspective, we learned how to build a cohesive argument that incorporated technical details and presented them to a non-technical audience with diverse backgrounds and motives. Through this interdisciplinary project, we gained not only a deeper understanding of environmental chemistry but also mastered skills in communication, debate, and teamwork.

Drs. Pollet and Lewis demonstrated that communication is a crucial way to propel our scientific research. Furthermore, they taught the class by seamlessly integrating the fields of chemistry and communication. Dr. Pollet brought her technical expertise through her chemistry research and experience in writing scientific papers and grants, and Dr. Lewis brought the perspective of a communications expert, specializing in

communicating with non-technical audiences. Together, they crafted a seamless course on technical communication for chemistry students. The interdisciplinary skills we have gained will benefit us in our future careers, whether in research or industry, affording us the critical ability to communicate and collaborate with others both inside and outside of the chemistry field. In my time at Tech, I have never before encountered a course that so skillfully blended two fields - chemistry and communication - in a way that our knowledge in both fields was equally enhanced and important. Of all of the classes that I have taken, this was the most effective, pertinent, and engaging course which seamlessly integrated and expanded my knowledge in two seemingly disparate fields. I highly recommend Drs. Pollet and Lewis for the Innovation in Co-Curricular Education award, and will always be grateful for the critical skills and perspective I have developed through their instruction.

Sincerely,

Anna Hart  
ahart29@icloud.com



Maya Renneker  
[mrenneker3@gatech.edu](mailto:mrenneker3@gatech.edu)  
January 2023

RE: 2023 Innovation in Co-Curricular Education

To whom it may concern,

My name is Maya Renneker, I am a recent graduate of the Georgia Institute of Technology School of Chemistry and Biochemistry. I am writing this letter of recommendation at the request of Dr. Pamela Pollet and Dr. Eric Lewis for their exemplary work in designing the chemistry special topics course “Communicating Sciences”. I took this course in Fall 2021 as part of my B.S in chemistry, and throughout my degree I worked closely with Dr. Pollet as one of her undergraduate advisees. It is my pleasure to recommend Dr. Pollet and Dr. Lewis for the Innovation in Co-Curricular Education award, as the dedication of these professors and the creative course design made Communicating Sciences a quintessential component of my chemistry degree.

I took Communicating Sciences as a chemistry elective to refine my ability to speak on research topics to an audience outside of my degree program. This course focused on writing and presentation skills both individually and in small groups, with notable projects being Ted Talk style presentations, invention patent writing, and a final class debate presented to both science and nonscience members of the GT community. These projects highlighted areas of chemistry not taught in the traditional curriculum and emphasized how to present research in a clear and effective way to peers in other academic domains. By having both a chemistry and LMC professor’s perspectives, this course was able to contribute to the development of my chemistry and communications knowledge in a way not yet provided by the chemistry curriculum.

As an academic team, Dr. Pollet and Dr. Lewis effectively blended their STEM and LMC expertise to create a course that would appeal not only to chemistry students, but any student with an interest in science communications. These professors paired exceptionally well, with Dr. Pollet’s background in chemistry providing essential knowledge on the chemistry topics, and Dr. Lewis’ background in LMC providing essential input on effectively communicating said topics. This combination of expertise lead to the development of a well-rounded course that highlighted not only the importance of chemistry knowledge, but also the importance of making that information accessible to a nonscience audience.

Overall, I believe the chemistry special topics course Communicating Sciences is highly deserving of the Innovation in Co-Curricular Education award. Dr. Pollet and Dr. Lewis created an engaging and memorable course that encompassed a plethora of communication topics not explicitly taught in the current chemistry curriculum, and I would highly recommend this course as an essential part of the chemistry curriculum.

Thank you for your consideration. If you have any questions, please feel free to reach out by email at [mrenneker3@gatech.edu](mailto:mrenneker3@gatech.edu), or by phone at 617-913-2666.

Sincerely,  
Maya Renneker  
Georgia Tech School of Chemistry and Biochemistry | Class of 2022

To whom it may concern,

This letter is written in support of Dr. Pamela Pollet and Dr. Eric Lewis's bid for the 2023 Innovation in Co-curricular Education Award.

My name is Shiloh Thomas-Wilkinson, and I am a third-year Biochemistry student in the School of Chemistry and Biochemistry here at Georgia Tech. I took CHEM 4803, Talk Like a Scientist (But Not Too Much), in Fall 2021. I really enjoyed taking this course. I think it fills in an important gap in the Georgia Tech sciences curriculum; namely, courses that instruct students on how to take the content they learn in their classes and in their careers and transform it into deliverables that can be comprehended by non-experts. This is an important aspect of many scientific careers, whether in industry or academic settings, and I decided to take this course because I wanted training in this arena. The concept itself is a good one, and Dr. Pollet and Dr. Lewis should be commended for actualizing it into a class.

I also felt that Dr. Pollet and Dr. Lewis did the concept of the course justice with the assignments that they designed. There were both written and oral assignments that covered a variety of scenarios in which science communication is necessary. We authored non-academic magazine-style articles, gave brief presentations on a research topic with a following Q&A session, and even drafted patent clauses. That last I felt was especially worthy of praise; patent law is a lucrative career arena that necessitates scientific expertise, but it is difficult to gain exposure to the field as an undergraduate without industry connections, and so the chance to speak with an Atlanta-area patent lawyer and Georgia Tech graduate for the assignment was incredible.

The design for the final project was also very well thought-out. It required us to perform literary research using databases outside of the norm for pure sciences (e.g., legal databases like LexisNexis), create multimedia presentations with limitations on visual aids, and engage in a town hall-style debate for a room full of people with little to no prior knowledge on the subject. I felt that the well-designed structure and flow of the assignments was a product of the complementary skills of Dr. Pollet and Dr. Lewis; Dr. Pollet has technical expertise, while Dr. Lewis has expertise in the composition of all manner of written and oral works. I thought that they paired well as instructors for this reason, and each of their respective skill sets were highlighted throughout the semester in the different components of the course.

Dr. Pollet and Dr. Lewis were both great instructors, and I am happy to endorse them for this award!

Shiloh Thomas-Wilkinson  
B.S. Biochemistry 2024  
Undergraduate Researcher in Hud Lab  
School of Chemistry and Biochemistry  
Georgia Institute of Technology

## 2023 CTL Innovation in Co-Curricular Education Award Nomination

### “Talk Like a Scientist (but not too much)”

Dr. Pamela Pollet (School of Chemistry & Biochemistry), Dr. Eric Lewis (Writing and Communication Program) and Dr. Josh Aronson (Eversheds Sutherland LLP)

#### **Summary:**

Capstone courses are common features in many disciplines, especially engineering. However, they are less prevalent in sciences and rarely designed as co-curricular. This is contrary to their unique position to connect often compartmentalized knowledge within the framework of authentic real-world issues. There is renewed need in curricula for intentional courses in which students can apply their skills to relevant challenges that bring together social justice, sciences, ethics, and public policy. Students are eager to bridge their rote learning with their perspective of the world and personal aspirations as they are looking forward to their nascent professional careers. As a consequence, the course “Talk Like a Scientist (but not too much)” is a convergent model of multidisciplinary capstone course that intentionally embeds effective and tailored communication, sound sciences, social engagement and activism, and an introduction to public policy and legislation.

#### **Instructional team:**

The co-curricular expertise was designed and implemented with an instructional team with complementary disciplines: Dr. Pamela Pollet (GaTech; School of chemistry & biochemistry) and Dr. Eric Lewis (GaTech; School of Literature, Media and Communication) and Dr. Josh Aronson, (Eversheds Sutherland LLP).

**Dr. Pollet** is an organic chemist and has published over sixty peer-reviewed research articles, thirteen patents, five book chapters and numerous oral presentations in the fields of switchable solvents, sustainable processes, green chemistry, flow chemistry, chemical safety and chemical education.

**Dr. Lewis** is a literature and writing scholar. He has taught cross-disciplinary graduate courses on academic publishing and article preparation and, as a CommLab consultant, has years of experience working with undergrads, graduate students, and professors from multiple disciplines on acts of communication such as dissertations, patent proposals, and conference presentations.

**Dr. Aronson** is a GaTech alumni from the school of chemistry and biochemistry and a patent attorney in the Atlanta office of Eversheds Sutherland (US) LLP. He has more than a decade of experience prosecuting patent applications in the chemical arts and also counsels clients on a number of patent-related matters.

### **Intended audience:**

The course was designed for undergraduate students at the senior level majoring in sciences, engineering, and/or liberal arts. The course was also tailored to cross-list with graduate students in the same breadth of majors. In Fall 21, despite the demand, the enrollment was by design capped at twelve to provide flexibility for instructional experimentation. Ultimately, the class included five majors (chemistry, biochemistry, biology, neurosciences, computer sciences).

### **Description of the co-curricular approach:**

The course **“Talk Like a Scientist (but not too much)”** aimed to equip students to identify scientific facts of complex and authentic real-world problems, to formulate a reasoned approach to the issues and to effectively communicate them to broad audiences ranging from peers to the general public. Like many capstone courses, the objectives are to provide a holistic, co-disciplinary experience to (i) consolidate and extend prior knowledge, (ii) develop communication skills, (iii) build scientific literacy and broad societal knowledge, (iv) challenge with in-depth inquiry, analysis and critical thinking, (v) foster inter-personal interactions (peer & faculty), and (vi) encourage creativity.

The first part of the course was aimed at integrating knowledge and tools and modes of thinking. The interactive lectures and weekly assignments focus on gathering and assessing facts and effectively communicating them.

*Example 1: Journalistic story.* The class explored writing sciences from a journalistic lens, using lead sentences and the inverted pyramid model, as well as engaging in peer review with their classmates and instructors. Ultimately, students built a portfolio of drafts that documented the evolution from their initial thoughts to the final, polished articles. Examples of titles and lead sentences of the articles are offered below to showcase the breadth of students’ outstanding contributions:

- **Proteins in ancient dental plaque provide evidence for Bronze Age migration mystery**  
Hygiene is important, but as it turns out, not brushing your teeth could actually provide key data to future archaeologists studying our civilization.
- **The More We Know About Why We Sleep**  
The vulnerability that sleeping brings to most animals is outweighed by the restorative benefits of waste removal from the brain.
- **The Milk Carton You Trashed Yesterday Could Save Your Car’s Engine from Wear Tomorrow**  
New chemical methods have been developed for the conversion of plastic waste into lubricating oils.
- **Through Analyzing Our Genome, Researchers have Found a Potential Genetic Cure to the Covid-19 Pandemic.**

Researchers discover that the gene TMPRSS2 plays a vital role in the spread of Covid-19.

- **Reduce, Reuse, Recycle Your Chemicals**

The future of our Earth may look grim, but recent advancements in green chemistry and continuous flow technology may target pharmaceutical pollution at its core.

- **Labels to Track Stem Cell Therapies**

Tiny labels may ultimately guide doctors delivering stem cells to repair damage in the body.

- **Georgia Tech's Fight to Make Plastics Less Energy Intensive**

It's no mystery that plastics and their production are having a negative impact on the earth, so it is a day for celebration when scientists discover a new technology which increases the efficiency of these crucial processes.

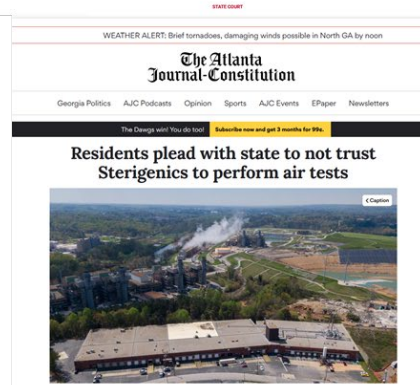
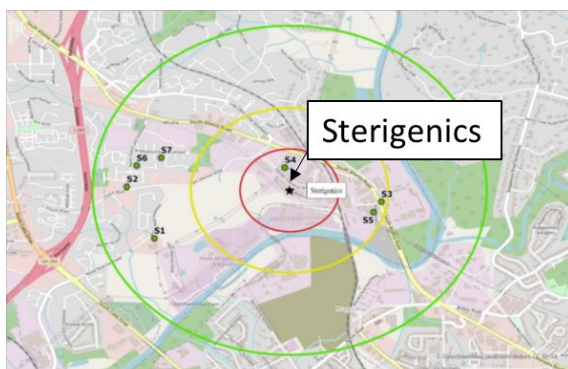
*Example 2: Short TED talks.* Subjects were open to students and were far reaching including topics such as: plastic & sustainability, bacteria in cancer treatment, climate change, mRNA vaccines, Parkinson's disease, wellness, the Flint water crisis, and LGBTQ youth & research in medical ethics. Another unique opportunity from the class was to learn how to package the information based on the audience.

The high-quality content of the class covers how to tailor communication to particular audiences as well as the delivery mode by covering writing emails, recommendation letters, and patent claims. Dr. Aronson deconstructed a patent, its structures, claims, and the specificity of the language used in his field.

*Example 3: Case study.* The last third of the semester is dedicated to an independent team project exploring a specific case study with the weekly guidance of the instructors. In fall 21, the case study was that of Steregenics and the alleged environmental release of hazardous ethylene oxide from their Cobb County plant.



Jury says Sterigenics not liable for woman's cancer, in second trial over Willowbrook EtO emissions



In teams of three, students assumed the roles of “scientific experts” in support of various stakeholders, such as Sterigenics, Cobb County Board of Commissioners, and local homeowners. The hypothesis was that they were hired by the company, the neighborhood association and their legal team, or the Cobb county legislative body to ascertain the facts and evidences, as well as to communicate these scientifically sound facts to a broad, non-scientific audience. As deliverables each team has to (i) produce a written brief on the case and (ii) deliver a 15-minute roundtable presentation (12 minutes presentation, 3 minutes Q&A) in front of a diverse audience including peers (invited by each team), faculty, guest speakers, and staff (non-scientist).

**Guest speakers:**

The connection with authentic challenges was further featured with guest speakers who shared their experiences and insight on science and journalism and chemical safety. Both guest speakers also attended the students’ final project presentations on the case study.

**Renay San Miguel** is Communications Officer and Science Writer for the College of Sciences with more than 30 years of experience in journalism. He has worked as an anchor and reporter for many TV news departments and won a Cybersecurity Award from Carnegie Mellon University for his online columns. Mr. San Miguel also has provided freelance marketing work for companies in Atlanta.

**Scott Bullions** is an alumnus of GaTech (School of Chemical & Biomolecular engineering) and Quality Systems Manager at Ethox Chemical LLC (Greenville, South Carolina) with 27 years of experience with ethylene oxide. During this time he has been a shift supervisor, process engineer,

research and development engineer, and served in his current position where he is responsible for the ISO 9001 Quality Management System. In addition, Mr. Bullions is Lieutenant Colonel in the U.S. Army Reserve where he serves as Chemical Officer specializing in Homeland Defense.

### **Impact and Evaluations:**

With an emphasis on in-depth knowledge and effective communication, this intentionally co-curricular course provides an avenue for the professional development of students and faculties. Quantitatively, the students' ratings for the course were outstanding, demonstrating that such courses engage and resonate with students. The ratings were: 4.8 (out of 5) in "overall course effectiveness"; 4.9 (out of 5) "instructors stimulate interest"; 5 (out of 5) "instructors: inclusive"; 4.9 (out of 5) "instructors' overall effectiveness" and "respect for students." Letters provided by students serve as qualitative indicators. In addition, Kathryn Holloway, one of the students in the course, noted in an unsolicited "Thank a Teacher" note: **"This was my all-time favorite course I have taken in my time at Tech and helped me solidify my desire to apply my science knowledge in my career with the eventual goal of becoming a patent attorney."**

**Transferability and Outcome:** Because of the success and reception of the course by students, the instructional team at Georgia Tech is committed to continue to offer the course to senior studies across three colleges. Communication skills are required by many professional schools and are transferable to many of our students' likely post-graduation careers. As a scientist, Dr. Pollet asks: Don't we all wish that we had formal training on effective communication to build on rather than learning as we go when writing a first grant application, reference letters, peer-reviewed articles, reports etc. ... Furthermore, **the course uniquely approaches effective communication of sciences by keeping in mind the larger, mainstream audience.** The success of *"Talk Like a Scientist (but not too much)"* is a model for deliberate co-curricular capstone courses that prioritize Georgia Tech's stated goals of global and ethical leaders and citizenship. In future offerings, new case studies at the intersection of sciences, social justice and public health will include the Flint water crisis and occupational and environmental chemical exposures.