Congratulations to:

- Louie Kato-Liu (T-19) on the birth of her son Lincoln on July 15, 2018
- Pei Shan (T-20) on being a gold award recipient of the Duke of Edinburgh’s International Awards. Pei received the award from Prince Edward of England
- The Presidential Scholar (GPA 3.9 - 4.0) awardees: Hannah Chu (T-20), Christian Dorta (T-20) and Vivian Kuang (T-20)
- The Provost’s Scholar (GPA 3.75 - 3.89) awardees: Rakib Ahmed (T-18), Zhaoqiang Jiang (T-20), Antoinette Koskinas (T-17), Amalia Koulougli (T-18) and Bushra Mistry (T-18)
- Saile Chen (T-19), Jennifer Foley (T-17), Qiqi Jin (T-18), Chiara Maniscalco (T-20), Sophia Nanas (T-20), Joyce Pan (T-20), Anastasia Papatheodorou (T-18), Movina Seepersaud (T-19), Pei Shan (T-20), Yee Tsim Siu (T-20), Elizabeth Spellen (T-20) and Qingqiu Zeng (T-19) on making the Dean’s List

Celebrating Mathematics Teaching with Eugenia Cheng

By: Nicole Mieczkowski (T-19) and Movina Seepersaud (T-19)

It is with great pleasure that TIME 2000 welcomes Dr. Eugenia Cheng as the keynote speaker for the 17th annual Celebrating Mathematics Teaching conference on November 2, 2018, at Queens College, CUNY. Mathematician, educator, concert pianist, author, and YouTube videographer are among her many titles. She is currently a professor at the School of the Art Institute of Chicago, where she teaches math to art students. She finds time in her busy schedule to give interviews and public lectures, write books and perform classical music. While growing up, her mother, a statistician, had a major influence on her love for mathematics as well as baking. In one of her interviews, Dr. Cheng says that she believes parents pass on their love and fear of certain topics, which is what her mom passed on to her: her love for math and baking and her fear of dogs. Many other parents pass on their fear of mathematics to their children. One of Eugenia’s goals is to rid the world of math phobia.

In addition to her residency at the School of the Art Institute of Chicago, she has taught at the universities of Chicago, Cambridge, Nice, and Sheffield. Her research area of Category Theory is described as the “mathematics of mathematics.” In her book “How to Bake π: An Edible Exploration of the Mathematics of Mathematics,” she describes mathematics as “the process of working out exactly what is easy, and the process of making as many things easy as possible.” In the book, she tries to make math more relatable through the art of baking. Every chapter starts with a food recipe that she connects to a mathematical point. She creates food recipes and in later chapters uses those recipes to make more complex recipes which is exactly how learning math can be perceived. Students can use their knowledge and build on it as they continue learning math throughout their lives.

Whether you are baking pies and cakes or solving mathematics problems it is the process that is most significant. We recently had the privilege of interviewing Dr. Cheng about her experiences with mathematics and teaching:

Q: What kind of abstract mathematics do you teach to students at the School of the Art Institute of Chicago?
A: I teach more or less from my first book "How to Bake π" with some things from "The Art of Logic." It's abstract mathematics as a way of thinking, not calculations.

Q: How do you motivate your students?
A: I think the important things are
1) Understand what motivates your students. Don't assume you know what it is. In particular, it might not be "real-life math problems" in the way you're expecting. I find that real-life numerical life problems are not at all motivating to my art students but real-life social justice questions are.
2) Make sure you care about what you're teaching, and know why you're teaching it. (If the answer is "because it's on the standardized tests" then that's unfortunate.)
3) Remember that if students are miserable then they'll learn to hate what you are teaching, so then no matter what skills you teach them it will be futile.

Q: What are the biggest challenges you encounter in the classroom? How do you deal with them?
A: The biggest challenge I've faced in the past was the fact that certain demographics tend to dominate class conversation (typically white men). I've dealt with that by writing everyone's names on popsicle sticks and pulling them out at random to contribute to the discussion. I also remove the risk of contributing by making sure everyone knows their contribution is valid and there are no right and wrong answers. This has neutralized the effect of social dominance on the class dynamic.

Q: As pre-service math teachers, we are always interested in the future of math pedagogy. What will play a big role for the next generation of math teachers?
A: I have no idea! Things seem to

(Continued on page 2)
Angelina’s Adventures at Queens College

As I completed my first year of teaching at I.S. 125 this past June, I found myself reflecting on my experiences at Queens College. Some of the most memorable classes I took, outside of my major, were fitness classes taught by Dr. Harry Hoehn, also known as “Doc.” Doc is an 89 year old man who once served in an elite team in the Marines. He now devotes his time to sharing his expertise with younger generations. For the last 60 years, Doc has been teaching, “Wilderness Survival Skills,” “Skiing and Snowboarding,” and, “Scuba Diving,” to students at Queens College. Throughout the semester, students learn each subject area. At the end of the semester, there is a trip where your new skills will be tested. For “Wilderness Survival Skills,” my class and I camped for a week during spring break in New Jersey. We had to make our own food, set up our own campsite, learn to canoe with a partner, and start campfires. For “Skiing and Snowboarding,” we went to Vermont for a week during winter break. There, we took skiing or snowboarding lessons, and at the end of the week received a final grade based on our participation. The trip for the Scuba class was optional. Each class has additional fees because of the trips, but they are worth every penny. All of these classes are once-in-a-lifetime experiences that did not take away from my studies, but instead enhanced my education. I highly recommend that current undergrads take as many classes with Doc as their schedule permits!

@QCTIME2000
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#QUEENSCOLLEGE

By: Angelina Ezratty (T-17)

Angelina (Ezratty-T17) while on a trip to Vermont as part of the final for Dr. Hoehn’s Skiing and Snowboarding class.

A Letter to Dr. Artzt: TIME 2000 Worldwide!

The Birthday Problem (as stated on NCTM.org)
How large must a class be to make the probability of finding two people with the same birthday at least 50%?

Let’s forget about leap year when we solve this problem (no February 29 birthdays!) This way, we can assume that a year is always 365 days long.

Also, let’s assume that a person has an equal chance of being born on any day of the year, even though some birthdays may be slightly more likely than others.

How large must a class be to make the probability of finding two people with the same birthday at least 50%?

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#TIME2000
#QUEENSCOLLEGE

By: Vidya Chow (T-4)

Note: The first person to submit a correct solution to Mrs. Weinman will win a TIME 2000 lanyard.

Dear Dr. Artzt,

How is your summer? David and I are on vacation in Prague. We are on tour and I met a fellow TIME 2000 graduate, Racheal Singh (T-16). You did it, Dr. Artzt! You have taught so many students that we can meet in different countries without any planning. Our vacation was great! Especially with Racheal and her family. It was great to have their company for the tours and dinner! We seem to have booked the same vacation package which included the same hotels and tours. I was so amazed to meet a fellow TIME 2000 graduate in a country that I have never visited. This made the trip more memorable and exciting. David made a connection to the “birthday paradox” with our coincidental meeting with Racheal. Given 306 TIME 2000 students (alumni and current undergrads) and 10,000 vacation packages to choose from.

What is the probability of any pair (at least one pair) of students selecting the same vacation (meeting in the same place at the same time)?

We had a wonderful time and David and I are glad we made the connection with Racheal. Best wishes!

Vidya Chow

Angelina Cheng (Continued from page 1)

be ever more contentious with a "battle" between people who think math should be more about understanding and those who think it should be more about drilling. But those groups are going for very different aims. I hope that we can think more about inclusivity rather than proficiency. That is, we should think about stopping people from being put off, rather than just getting people to do better.

Q: You’re involved in many endeavors; what aspect of your current lifestyle do you find most fulfilling?

A: I don’t tend to put things in competition with each other, but overall the thing I find really fulfilling about my current life is that I genuinely feel that I am making good use of my combination of abilities to help the world. And I am combining activities in a way that I think is fairly unique - research, teaching math to art students, writing books and columns, public speaking, school visits, media interviews, music performance and art.

Q: What advice do you have for current and future TIME 2000 students who are preparing to become mathematics teachers?

A: I would say to remember that math is important not just for direct practical applications in numerical aspects of the world, but as a way of thinking more clearly about the world.

For more information on Eugenia Cheng, visit eugeniaccheng.com

By: Vidya Chow (T-4)

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By: Angelina Ezratty (T-17)

Angelina (Ezratty-T17) while on a trip to Vermont as part of the final for Dr. Hoehn’s Skiing and Snowboarding class.

For “Wilderness Survival Skills,” my class and I camped for a week during spring
Voices From the Field: Shari Eng (T-5)
How to Cultivate a Successful Collaborative Team Teaching Environment

Shari Eng, TIME 2000 class of 2006, is in her second Math for America (MfA) Master Teacher Fellowship and is dual licensed in Mathematics and Special Education. She teaches Algebra and Algebra II at Bayside High School in Queens. Shari attended Bayside High School as a student and also completed her student teaching there. The excerpt below is taken from Shari’s article that recently appeared on the MfA Teacher Voices blog. The full article can be found at http://mathforamerica.org/news/how-cultivate-successful-collaborative-team-teaching-environment

What are the ingredients to a successful learning environment? If you ask this question to any teacher, would answers vary? Definitely. If you ask this question of a general education and special education co-teaching pair, answers would still vary. If you ask this question to the same teaching duo five years later, would their answers be the same as before? Probably not. No doubt their answers would evolve. Co-teaching is unique and teachers are individuals, each bring their own knowledge and skill to the classroom. This is a benefit to both students and the teachers themselves. Students should not be the only learners in the classroom. Teachers should be learning too. Along with learning comes growth. Good teachers continuously modify their lesson plans and their approach to teaching a specific topic, and reflect on their students’ growth and end-of-year results. Good teachers – both general education teachers and special education teachers – don’t just teach. Co-teaching pairs do additional work to align their style and skills. Here I’ll share some key commitments my co-teacher and I have discovered so that we can learn and strive, growing continually in our practice while finding balance in our classroom.

I have been teaching for 12 years and the bulk of my teaching has been in a collaborative setting where I am the special education teacher. My co-teacher and I had to work intimately and be on the same wavelength regarding our students and what was happening in our classroom. Through our experiences and reflections, my co-teacher and I have narrowed down four ingredients that make our classroom a successful learning environment for all students.

Write it down. At the end of each teaching day my co-teacher and I separately jot down notes about anything related to instruction, interaction with students, and edits that need to be made to our lesson plans. At the end of each week, we take these daily notes and write a paragraph reflecting on them. We share those notes with each other, building and tuning our learning from the week. Ultimately, we want to learn how to improve our teaching, student understanding, and how to make the classroom a more successful learning environment. These notes make our conversations more objective and focused. By taking notes each day and then revisiting them at the end of the week we keep track of the details while fitting them into the bigger picture.

Make it about the learning, not the stuff. I am confident every teacher has heard a student ask, “Can I borrow a pencil?” or “May I borrow a graphing calculator?” Flashback to my third year of teaching: I would have asked the student why they came to class unprepared and scolded them for their lack of effort. Today, if students ask me the same two questions, I gladly say “Yes, of course!” In my co-teaching classes, we agree on this philosophy at the start of the year so that we can be consistent and supportive to students. We believe if the student is asking to borrow a pencil or calculator then he/she is ready to learn at that moment and is advocating for his/her own learning. When a student sits at a desk without any resources and does not ask for help, it is actually more troubling! In the past, I have worked with teachers who wanted students to have graphing calculators, and if they did not, students would be penalized for not participating in class. This was really difficult for me. Of course, all teachers would love all their students to have all the resources for practice inside and outside the classroom, but realistically, this is not the case. When my co-teacher and I agree on this early in the school year, we can focus more on student learning and growth, not on minor things.

Make groups the norm. A classroom is more inviting when the desks are arranged in quads. We believe that when students are seated in quads, we are creating a collaborative environment where sharing becomes natural and student interaction and working together becomes the norm. We take time to teach students how to work in a group. This time is worth it and soon students can ask each other for assistance, check answers, and self-regulate. When students are seated in quads, we can more easily check-in with each group as well as differentiate student learning. Many teachers move their students from rows into groups of four when an activity calls for group work. Instead, why not seat students in groups and if an activity calls for individual practice, move them into rows?

Focus on student growth, not student grades. Teachers in a collaborative setting have students with disabilities who are unable to pass in-class assessments or reach mastery level. Since our students struggle a lot in math class, we consider the students’ effort and growth as a way of measuring their understanding. We have found that when students know that we are looking for effort and growth rather than a passing grade, they are motivated to learn and explore the content. If teachers understand that not all students achieve at the same level or learn at the same pace and allow growth and effort to be part of their teaching practice, students will enjoy learning more. Likewise, cultivating an environment focused on learning, and not simply grading, is more challenging and enjoyable for the teachers too.

Both special education and general education teachers, especially those in a collaborative setting, have goals for all students. Goals vary from wanting to provide students with the best problem-solving skills or the ability to become lifelong learners or simply helping them pass state exams. Regardless of the type of goals you may have for your students or yourself as a teacher, it is essential to take time with your co-teacher to identify shared ingredients you believe are key to creating a successful learning environment. That way, both you and your students will grow and learn together.

What do you get when you divide a jack-o-lantern’s circumference by its diameter?

Happy Thanksgiving!
In Memorium: Charles B. Wang

TIME 2000 joins QC President Felix V. Matos Rodriguez in mourning the death of distinguished alumnus and former Queens College Foundation Board member Charles B. Wang who passed away on October 21, 2018. Mr. Wang graduated as a mathematics major at Queens College and was a co-founder of the software company Computer Associates International Inc. and also a part owner of the New York Islanders hockey team. He was well known as a businessman, sports entrepreneur and philanthropist. His philanthropy included generous donations to TIME 2000 as one of the program’s first private funders after the grant from the National Science Foundation expired. TIME 2000 is forever grateful to Mr. Wang and joins President Matos “in recognizing Wang’s many contributions to knowledge and to our greater society.”