

The Sum Times

March 2019

Table of Contents:

- Message From the Chairperson
- Retiring Faculty Spotlight
- Math Club and AWM News
- MLRC and Math Dept. Information
- Fall 2019 Math Electives and Seminars
- Spring Semester Dates to Remember
- Where are they now?
- Spring Calendar
- Study Abroad and Registration Information
- Tribute to Dr. Norton

Message from Dr. Norton

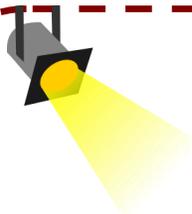
Welcome to my final welcome piece for the Sum Times. Please excuse my nostalgia, but many of you student readers were but wee bairns when I first became department chair, so I have been cranking out these wandering intros for a period of time that can be described just as most of my writing pieces can be described: much too long. (Just like that sentence.) It is neither the nudge of nostalgia nor simply the shorter days shifting this piece toward somber. This winter, to quote Edgar Allan Poe, "I felt that I breathed an atmosphere of sorrow." To the loss of David Sorrentino, one of our minors, in December, we have now added the loss of Madeline Ruocco, one of our majors, in February. Their friends, their classmates, their professors: to our mathematical familiarity with metric spaces and vector spaces we all add a new familiarity, with the empty spaces in our lives. More than spatial, the change is a dynamic one. With Argentine poet Alejandra Pizarnik, we claim: "Melancholia is, I believe, a musical problem: a dissonance, a change in rhythm. While on the outside everything happens with the vertiginous rhythm of a cataract, on the inside is the exhausted adagio of drops of water falling from time to tired time." So, what to say in this column? Perhaps one final reflection on our title: The Sum Times. With advice, for no extra charge.



Dr. Douglas Norton
Dept. of Mathematics and
Statistics Chairperson

Along with pairing multiplication with addition, plus a journalistic twist, "times" can also refer to iteration (my dynamical systems bias showing here): how many times you do something. Our academic lives can sometimes (Sum Times?) feel repetitive, an iteration of first days and midterms and finals and on to the next courses, the continuous flow devolving into a discrete drip, drip, drip. "Times" can also be the tempos, the metrical durations to which the music of our lives plays out. We have our own rhythms, the very rhythms disrupted by our winter's atmosphere of sorrow. Despite the feel of iteration, we can never step into the same river twice. Each semester, each course, each new day, each new friend, brings a difference. These times in which we live

differ from long ago times and even the recent times of our own lives. Some of these differences, as these recent ones, are indeed subtractions. As Bob Dylan wrote in 1963 (even before I was in college!), The Times They Are A-Changin'. Even though each of us is a sum of the elements of our lives that got us to here, to now, remember that we are all partial sums. Some of those sigma notation sums could be very similar in form but have drastically different results. It is sort of a "sensitive dependence on initial conditions" thing. In these changing times, as you add to your sum, remember that Latin word sum, as in "cogito, ergo sum": I think, therefore I am. (Thanks, Descartes, for more than the Cartesian plane.) We mathy types like the cogito part and we use the ergo part a lot in proofs. My parting wish for you is that you embrace the "sum": I am. Be. Be in the moment. To honor and remember those we have lost, go beyond the courses and the activities: be with your friends. Be in the times, while they are a-changin'. Be intentional to nudge your path in ways that sensitive dependence on initial conditions can take you. Don't get caught in the flow, divided from your preferred path. (Division. Check.) Set your own tempo. Harmonize that dissonance between external allegros and internal adagios. Determine your own convergence. These are the times in which you assert, "I am": the Sum Times.



Retiree Spotlight

“Dr. David Sprows long aspired to live the line in the Villanova Alma Mater: “When the oldest pedagogue has had the final word.” As he retires this year, he has reached one version of that claim: he is not the oldest, but for a while, he is the pedagogue with the longest service: 57 years of teaching at Villanova! He did his undergraduate studies at West Chester University and then taught at Villanova while completing his master’s degree here and his Ph.D. at the University of Pennsylvania in topology. He learned at Penn what he has shared with his students for decades: that there is no topological distinction between a doughnut and a teacup. He was nominated many times for the Lindback Teaching Award over the years and was awarded the James P. Crawford Teaching Award by the Eastern Pennsylvania and Delaware section of the Mathematical Association of America in 1993. He was a serious participant in the student/faculty softball game and faculty tennis. On a Sunday morning when he and Fritz Hartmann were the only people on the tennis court, they finished play, got in their cars, and backed into each other. So much for probabilities! We celebrate his improbable status as the oldest pedagogue among us and await his final word to us.”

-Dr. Fritz Hartmann & Dr. Douglas Norton



“In the 1990s, Bob DeVos was the chairperson of the math department, one of the largest departments in the college. Indeed it had more faculty than some of the other smaller colleges. Besides its own graduate and undergraduate programs, the department provided math classes to students across the university. Prior to becoming chair, Bob had the arduous task of scheduling those hundreds of courses. He did the job with such efficiency that the dean’s office knew only that there were no problems. In 1997, the dean’s office had an opening for an associate dean. Dr. Barbara Wall, who was associate dean at the time, recommended Bob to fill the vacancy. I still recall her words, “Bob DeVos would be excellent for the position as he is kind and

compassionate toward students.” I knew this from my dealings with Bob as chairperson. From the start, Bob became a tremendous asset to the college. As dean of the college, we had to be concerned with course enrollments and cancellations. Bob brought his enrollment management experience in the math department to that task. In addition, administrative difficulties sometimes arose that required an experienced administrator. On two separate occasions, this included temporarily filling chairperson vacancies in the department of physics and modern languages and literatures. These positions were complex and required a fresh look from an outsider. As a former chairperson, Bob fit the bill. He readily took on these assignments, brought his calm demeanor, sense of fairness and concern in dealing with problems and did a wonderful job. When I became VP for Academic Affairs in 2010, I asked Bob to move with me to Tolentine. Bob did such a great job monitoring course enrollment in the math department and the college; I felt we needed his expertise for the entire university. Bob readily accepted but in the process, he sometimes had to endure the wrath of other administrators who did not like having their course canceled and their faculty reassigned. Nevertheless, he did his best to work with these administrators and things eventually worked out. During Bob’s tenure in the VPAA’s office, another vacancy occurred in the Falvey library. The director had taken a position at another university and we began a search for a replacement. When the job search proved unsuccessful, I once again called on Bob to be the interim director of the Library. Again, he gladly agreed and threw himself wholeheartedly into the complex job that entailed dealing with book vendors and staff. Once again, he did a remarkable job. Thank you Dr. DeVos for your 53 years of service to Villanova University. We wish him Godspeed.”

-Father Kail Ellis, O.S.A. and Dr. Dave Sprows



Prof. Regina Buckley began teaching at Villanova 37 years ago. She earned her bachelor's degree from Goucher College, went on to graduate studies at Cornell University and the University of Pennsylvania, and earned her Ph. D. from Bryn Mawr. She has taught a wide variety of courses at Villanova, from first-year Introductory Statistics and Discrete Math to graduate Topics in Analysis. Most recently she has enjoyed teaching our special statistics courses for students in the Nursing program. Dr. Buckley is a voracious reader, including a daily diet of the New York Times, and enjoys discussing all sorts of topics. Education is one of her favorite topics, which played out in her many years of service on the Lower Marion Township school board. Her family is very important to her. She travels every summer to spend time with her three children and four grandchildren. She even has three sisters who are non-identical triplets! Dr. Buckley is not identical to anyone else on our faculty. Nobody can quite fill her shoes. We will miss her.

- Marilyn Belkin & Dr. Douglas Norton

"Marilyn Belkin first arrived at Villanova in 1982, when Dr. Hartmann was the department chair. She had taught previously at Carnegie Mellon University, where she received a master's degree in statistics. From the beginning, Mrs. Belkin was a very popular teacher. No student could expect her class to be easy, but the rooms always filled to capacity anyway. Although she sometimes got hiring offers from other schools in the area, luckily she always chose to stay with us. In the 80s she was the advisor to the Math Club. For decades, she and Dr. Longman were the Calculus coordinators, which put that powerful duo in charge of our most-enrolled courses, the 12-credit calculus sequence.

Mrs. Belkin's official title at first was Instructor, and later on she became an Assistant Professor. Those titles really should have come with a subtitle: Activities Director. For whenever the department had a social gathering, she was involved in the planning and the hard work from start to finish. At the end of each calendar year when it was time to collect for staff gifts, she took charge. At some point an official Social Committee was formed, but that was really just an official recognition of the job that Mrs. Belkin and the office staff had been doing all along. By the time I met her in 1999, Mrs. Belkin was well-established as the kind of teacher that other teachers look up to. She was on my hiring committee, and though there were people with bigger titles in that conference room that day, it was clear to all of us that hers was the most important opinion in the room. She has served on many such committees over the years. In 2003 she won the Bridgebuilder's Award from LSS. She has convinced many an undeclared student to take on the math major based on her classes. An easy way to find her office was to look for the door with the big photos of her grandchildren, of whom she is quite proud. And an easy way to find her car in the lot is to look for the nicest one. Mrs. Belkin loves fancy cars. Dr. Hartmann still remembers the day 35 years ago when she let him drive her Porsche-but just once.

Sometimes when we taught near each other in Mendel, I would stop by her classroom to see if she wanted to walk back to the office together. Often she couldn't, because a student needed extra help, and she was going to stay overtime in Mendel till every question was answered. That's the kind of teacher she is. That's the kind of teacher I aspire to be, too.

- Paul Pasles



Dr. Joseph Pigeon graduated from Villanova University with an undergraduate degree in Comprehensive Science. After a brief stint in the working world, he came back to Villanova to earn his Master's Degree in Applied Statistics. He then returned to industry working as a biostatistician in the pharmaceutical industry. While working in the pharmaceutical industry, he returned to school and earned his Ph.D. in Statistics from Temple University. Shortly thereafter, his alma mater came calling and he started a full-time position teaching statistics at Villanova. Joe's passion in statistics is in the design of experiments. He was a pillar of both the undergraduate and graduate programs, teaching almost all of the statistics courses that the department offered.

It was as a young 19 year old sophomore that I first met Dr. Pigeon while taking his MAT 4310 Statistical Methods course in 1992. His course was difficult but fair, qualities that I aspire to in my teaching today. He made you understand why the subject matter was so important. I fell in love with statistics from Dr. Pigeon. He would bring his experience working in the pharmaceutical industry into the classroom and he made statistics come alive! After graduating from Villanova, I followed in Joe's footsteps and went to Temple to earn my Ph.D. in statistics. We shared the same thesis advisor and Joe was an external committee member for my thesis defense. After I returned to my alma mater, Joe and I worked on research together publishing a joint paper in the design of experiments. Joe Pigeon has been a mentor to me from age 19 through the current day!

Joe is a Villanovan through and through. He bleeds blue! In addition to being an alum, all of his kids went to Villanova and all of his grandkids are decked out in blue in white in every picture that I ever saw. He spend many years as a men's basketball season ticket holder cheering on the blue and white to victory! He is also an avid golfer that went on many faculty spring break trips to Myrtle Beach. The good news is that in retirement he can spend some much needed time working on his game!

-Paul Luppinnacci

Villanova Math Club

The officers of Math Club are excited to welcome returning and new Math Club members! This year, Math Club is under new leadership:

Co-Presidents—Kellen Short and Saurabh Verma

Everyone is welcome to join Math Club - Math Majors and Minors, Liberal Arts and Sciences students, Business students, Engineering students, graduate students. **If you love math, are interested in it, need help with it, or simply want to meet new people**, then Math Club is the club for you!

Meetings will take place approximately every three weeks in the MLRC and will include snacks, discussions about classes and professors, as well as fun activities such as math-themed competitions. This year the Math Club is planning on organizing several events, for instance, **a professional development night, Quizzo nights, Teacher talks, Math in Movies night, Board game night, a T-shirt design contest, and more!**

Association for Women in Mathematics

Open to anyone interested in math, supporting women in math, or wanting to meet new people! Meetings are held approximately every 2 weeks. We have field trips, guest speakers, a mentor program, service opportunities and host a breakfast on reading day.

For more information please contact: kaustin5@villanova.edu

Mathematics Learning And Resource Center (MLRC)

Phone: (610) 519-MLRC (6572)



Location: 204 Falvey Library

Resources:

Hours: Sunday 6:30-9:00pm

Free Walk-In Tutorial Service

Mon-Thurs 11:00am-5:00pm & 6:30-9:00pm

Free Appointment Tutorial Service (Appointments can be made at: www.villanova.mywconline.com)

Dates: Jan 22—Feb 28

Course Software Access and Support

Mar 11—Apr 16

Free Review Materials for:

Apr 23—May 2

Algebra II, Geometry, Trigonometry, Probability/Statistics, Calculus I, II, III

If you're interested in becoming a tutor, email mlrc@villanova.edu

To learn more about the MLRC, visit

www.villanova.edu/mlrc



Printer's down!



Department of Mathematics & Statistics

St. Augustine Center
Room 305
Villanova University
800 Lancaster Avenue
Villanova, PA 19085

Tel: 610.519.4850

Fax: 610.519.6928

Email: math@villanova.edu

Chair: Dr. Douglas
Norton

Staff: Chris Gadonas,
610.519.4809
Maria Barrett,
610.519.4850



VILLANOVA
UNIVERSITY

Fall 2019 Electives

MAT 3930 History of Math – Alan Gluchoff

This course provides a brief survey of the development of mathematics and mathematical ideas from ancient to modern times. Mathematics is viewed in the context of the epochs in which it evolved. Specific theorems and concepts are presented along with historical events which accompanied them. As examples: we study some geometry of Euclid's Elements and the mathematics of later Greek and Hellenistic times while emphasizing the importance of the Elements as an educational force throughout the centuries, the role of Persian civilization in preserving Greek accomplishments and producing new algebraic ideas, the extension of algebra which accompanied the Renaissance and the Italian trading empires, the first European scientific academies and their nurturing of the new calculus, the mathematization of science and the resulting change in philosophical world view made possible by it, and the coming of the modern view of mathematics, which we tend to think of as having emerged full-grown.

MAT 4210 Bayesian Stat Data Analysis – Al Marrero

Generally, at present, Bayesian statistics is only taught at the graduate level. This course gives Villanova undergraduates the opportunity to learn about this important area of statistics. The course is an introduction to the statistical data analysis from a Bayesian viewpoint. We assume no previous knowledge of Bayesian statistics. The course is intended to give the students a taste of what it is like to work as a statistician, doing statistical analyses and writing statistical reports. It is meant to be a practical, hands-on learning experience.

Prerequisite: MAT 4310 and MAT 5700

MAT 4310 Stats Methods – Yimin Zhang & Elise Pasles

This course is an introduction to data summarization and various statistical methods that will allow students to begin to build up a toolbox of statistical techniques for handling data analysis. The class will study probability distributions that will serve as the foundation for these methods. The statistical methods that the class will study include point estimates, interval estimates and hypothesis tests for population means, variances and proportions, categorical data analysis, regression and correlation.

Prerequisite: MAT1505



MAT 4380 Data Science – Michael Posner

Data-savvy professionals are in high demand in business, public agencies, and nonprofits. The supply of professionals who can work effectively with data at scale is limited, and is reflected in rapidly rising demand and salaries for data scientists, rated as the #1 job in the US in 2016. This course explores how real-world data from a variety of disciplines are gathered, managed, and used for making decisions or predictions. Core topics will include data wrangling, visualization, multivariate thinking, text processing, data mining, ethics, and simulation-based inference. This course will introduce students to the statistical programming language R to accomplish these tasks. Prerequisite: any introductory statistics course (MAT 1230, MAT 1250, MAT 1430, MAT 4310, MAT 1313, or similar).

MAT 4550 Financial Derivatives – Klaus Volpert

This course covers topics from Financial Mathematics, such as:

- mortgages and loans
- inflation and other interest rates
- What are stocks? Bonds? Options?
- A Random Walk on Wall Street
- volatility of stocks
- the concept of arbitrage
- put-call parity
- the Black-Scholes model for option pricing
- Monte Carlo methods for option pricing

“No winter
lasts
forever;
no spring
skips its
turn”
-Hal
Borland



The course is helpful in preparation for actuary exams FM and MFE.

HELLO
SPRING

“Spring: a
lovely
reminder of
how
beautiful
change can
truly be” -
anonymous



MAT 5700 Math Stats I – Michael Levitan (satisfies 2nd analysis requirement)

The course covers the basic principles of the theory of probability and statistics. Topics include: probability, random variables, discrete and continuous probability distributions, important families of distributions, multivariate probability distributions, and functions of random variables.

Prereq: MAT 2500 & 2705

MAT 5920 Coding Theory – Katie Haymaker

Coding Theory is the study of how to reliably communicate in the presence of errors. Error-correcting codes are used in all modern communication and storage devices: computers, phones, dvds, flash drives, and more. In this course we will explore the math behind error-correcting codes, including linear algebra constructions and applications of discrete math.

MAT 2705 is a prerequisite for this course.

MAT 5920 Applied Linear Algebra – Tim Feeman

This course will be a pilot for a new first course in Linear Algebra that will introduce linear algebra and matrix theory to students in science, technology, engineering, statistics, computing science, and data science by focusing on modern applications in their fields of interest. Applications and matrix theory will be woven together, with the math flowing from the applications and, in turn, leading us to new, more sophisticated applications. Through this course, we will experience the power of mathematics to help us comprehend and actively participate in today's information society.

Applications will include statistical correlation and regression, web information retrieval, matrix geometry for computer graphics, finding good connections and clusters within a network, least squares problems, ratings and rankings of web pages, and data compression. We will explore important linear algebra concepts, such as orthogonality, matrices as transformations, matrix factorization, and eigenvalues/eigenvectors.

Prerequisite: MAT1505; (some prior experience with vectors or matrices, such as MAT2500 or MAT2705, will be helpful, but not required)

Fall 2019 Seminars

MAT 5900 Math Modeling Seminar – Katie Muller

Mathematical models provide a way of describing biological, physical, chemical, social, or economic systems quantitatively. They allow us to describe and understand the processes underlying physical or real-world phenomena and hopefully answer real world questions and predict future results relating to a physical system. Modeling is used extensively in almost every field of academia and industry. It is the goal of this seminar to explore the process of developing a mathematical model and learn techniques for analyzing the validity of the model as well as making conclusions about a real-life system from the model. The course will center around a modeling project where each student chooses a topic of interest from another field such as biology, chemistry, engineering, sociology, etc. The goal will be to formulate a mathematical model, solve the mathematical problem related to your model (e.g. solve the differential equation resulting from your modeling process), validate your model with any available data, and interpret your results. Many models focus on differential equations so this course will provide students with an opportunity to learn more differential equations theory beyond MAT 2705. In addition, we will utilize linear algebra, probability and statistics, as well as other various mathematics depending on the student's project choice.

“Spring is nature’s way of saying, ‘Let’s party!’”
- Robin Williams



MAT 5900 Matrix Groups Seminar– Al Marrero

Matrix groups are, not surprisingly, groups whose elements are matrices. The study of matrix groups provides a deliciously lovely introduction to Lie (pronounced LEE) theory, a part of differential geometry that has found applications in various contexts, especially in physics. We'll spend the semester studying various matrix groups and their inseparable companions, the Lie algebras. The prerequisites are MAT 3400 Linear Algebra and MAT 3500 Modern Algebra I.



Spring 2019 Semester Dates To Remember

π Day

When: Thursday March 14th from 11:00am-3:00pm

Where: Connelly Center

Find the Math Club and Association for Women in Math Club throughout the day selling baked goods in honor of Pi Day!



Later in the day Join the Villanova AWM student chapter

Who: Math majors, minors, faculty, staff, and friends

When: 3/14, 5:00pm - 6:30pm

Where: SAC 305

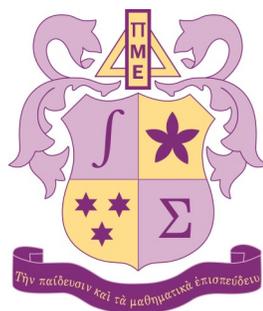
Why: Because Tau Day is in the summer

Pi Mu Epsilon Induction

Friday May 3rd 2019 (Reading Day)

Will be held from 10:00am-11:30am

in **Mendel 115**



Guest Speaker: Dr. Lorelei Koss of Dickinson University

NOVAdance

NOVAdance is a 12 hour dance marathon that raises money for pediatric cancer.



It will be held on March 23rd in Jake Nevin from 9am-9pm

Annual Math Faculty vs. Student Softball Game and Picnic

It will be held on **Austin Field** on Reading Day, **Friday May 3** from **11:30 a.m. to 1:30 p.m.**



shutterstock.com • 166247483

Come for a friendly game of softball, some food, and fun.

If it rains the picnic will be held indoors in SAC 300.

Where They Are Now?

Profile on two of our previous student workers



Lizzie Ryan

Lizzie graduated in December 2018 with a B.S. in Mathematics and a Business Minor. She is now living in New York City working for Deloitte Consulting in their technology sector as a Business Technology Analyst (BTA). She just finished 2 weeks of training, and is now working on getting staffed on her first project!



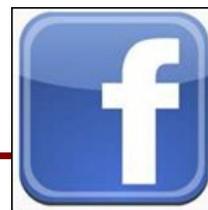
Ashden Personius

Ashden graduated in May of 2018 with a BS in Mathematics, BS in Environmental Science, and a minor in Statistics. She now works in the Buckeye Program at Leidos in Alexandria, VA as a Geospatial Analyst.

Spring Calendar

Mar. 1 (F)	Mid-Term
Mar. 4 (M)	Semester Recess
Mar. 11 (M)	Classes Resume
Mar. 15 (F)	Pre-Registration Begins
Mar. 23 (S)	NOVAdance
Apr. 17 (W)	Easter Recess after last class
Apr. 23 (Tu)	Classes Resume
Apr. 30 (Tu)	Friday Class Schedule
May 1 (W)	Monday Class Schedule
May 3 (F)	Reading Day
May 4-10 (S-F)	Final Examinations
May 17-18 (F-S)	Baccalaureate & Commencement

Become a fan of the [Department of Mathematics and Statistics at Villanova University](#) page on [Facebook](#).



Join the [Villanova Mathematics and Statistics Alumni and Students](#) group on [LinkedIn](#)



Registration



Study Abroad

Interested in studying abroad? Stop by Villanova's Office of International Studies and meet with a member of the staff to learn about different opportunities.

Office of Education Abroad
Middleton Hall,
2nd Floor
(610)519-6412
abroad@villanova.edu

If you would like to submit an article or have an idea for the SUM Times, please contact the math department!

To All Students: Set up an appointment to meet with your advisor to prepare for registration.

=====

Preparing for Registration

Meet with your Academic Advisor:

Discuss your course options for next semester
Receive your Registration PIN (a.k.a. Alternate PIN)

Registration PIN:

Save it to your phone or email
Changes each semester
Spring Registration PINs begin: sp ____ (four random numbers)
Fall Registration PINs begin: fa ____ (four random numbers)
Take the time to test your PIN before your registration time begins

How to "Test" your PIN: Go to your *Student* tab → *My Schedule and Registration* → *Login to Register* → Select the appropriate term → type your PIN

If you enter the correct PIN, the system display your registration time appointment
If you enter an incorrect PIN, you will receive an error message: *Authorization Failure – Invalid Alternate PIN*

If you feel you have the incorrect PIN, contact your Advisor or your Advising Center

Note: The system is "case sensitive." The letters are lower case.

Check your Registration Status link will display the following:

Date and time you can begin registering and the date and time online registration ends.

An alert if you have Holds on your account which will prevent registration

Link to View Holds is at the bottom of the screen

Your Academic Standing

Your Student Status

Your Class for registration (example: *Sophomore* class will not permit registration into courses restricted to Juniors and Seniors only)

Tribute to Dr. Douglas Norton

Dr. Douglas Norton has served as chair from 2003 to 2019, a total of 16 years, the second longest serving chair in the history of our department. Doug's tenure as chair is second only to the founding chair, Emil Amelotti, who served as chair from 1947 to 1968. In 2002, when Dr. Norton became chair, our department had 28 full time faculty; this Spring 2019 we have 40 faculty. Dr. Norton hired 21 of these faculty, so more than half. In May 2003, we graduated 13 math majors; in May 2018 we graduated 37 majors, more than double.

Numerous area universities have sought Dr. Norton to serve on the external review team for their mathematics programs. Under Dr. Norton's leadership the department faculty have won two Lindback Teaching Awards, the University Outstanding Research Award, two University Service Awards, two CLAS Tolle Lege Teaching Awards and the CLAS Veritas Research Award. Under his leadership, the department has maintained a stellar reputation for quality teaching and service courses that meet the needs of many diverse majors on campus.

Perhaps Dr. Norton's humor underlies his success; his quick wit brings smiles, and he never aims his sharp wit at anyone to tear them down; more often he self-deprecates himself to bring a smile from others. We all agree that Dr. Norton really does have a big heart.

Dr. Norton exemplifies Villanova's commitment to social justice. He helped run a summer program on environmental issues, a topic in which he cares deeply. Years ago, he was one of the first people to own a Prius. He attends the Wayne Central Baptist church, a haven of social justice seekers. He is a regular in the Philadelphia Interfaith Walk for Peace and Reconciliation.

For several years Dr. Norton has organized sessions on math and art at the national mathematics meetings. It began with one session of a few speakers, but it has exploded in popularity; this past January Dr. Norton had to organize four full sessions of speakers, the annual "math and art" exhibition that attracts the attention of national newspapers, and a special session on mathematics and poetry. (See his webpage for some delightful math poetry.)

Dr. Norton is truly a polymath: in 2001 his paper won first prize at the *Experience of God in the Disciplines Conference* meeting. He gave the plenary address at a St Thomas of Villanova Day opening where he discussed butterflies, chaos, and free will. In the March 2012 SUM Times he wrote his chair column in Polish (look it up!).

We are all grateful for the time and energy Dr. Norton has given support to the math faculty and students for 16 years. Though he steps down as chair, we know Dr. Norton will continue to march on for truth, as he advised us in the March 2013 SUM Times:

“You may march to the beat of a different drummer, in lockstep with others as to a John Philip Sousa march, in a protest march, or with the saints as they go marching in. You may face danger as in the Ides of March or try to change the world as with the March on Washington for Jobs and Freedom. As we march onward to the end of the semester, to whatever summer or the broader future holds, for our seniors and for all of us, remember the words of Khalil Gibran: “March on. Do not tarry. To go forward is to move toward perfection. March on, and fear not the thorns, or the sharp stones on life's path.” As Zola says, “The truth is on the march and nothing will stop it.” So as Dr Norton enters the next phase of his career and life, we wish to thank him for his service and dedication to our department and to Villanova University. March on Dr. Norton, march on!

-Dr. Robert Styer

