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The Sum Times

October 2020

Message from Dr. Frey

Welcome to the Fall 2020 edition of the Sum Times! I encourage you to read through this document to learn about our course offerings for Spring 2021 and the various events coming up this fall. I also encourage you to review the various faculty and alumni profiles that are included.

This semester has been very unusual and stressful for all of us. I congratulate you on your success in implementing the CARITAS commitment and making it possible for us to be on campus!

One of the biggest news stories this year is the racial justice movement that brought people to the streets in cities across the country after the killing of George Floyd. Our department's Diversity, Equity, and Inclusion Committee, co-chaired by Drs. Pollack-Johnson and Diaz-Lopez, led the department in drafting a letter of support for the local @blackvillanova group over the summer. The letter and a description of ongoing racial justice actions in the department are available on our webpage.

Link: <https://www1.villanova.edu/villanova/artsci/mathematics/about/diversity-inclusion.html>

The Statistics major, which was approved last fall, is now available. At least 16 students have declared the major already, including one Mathematics-Statistics double major.

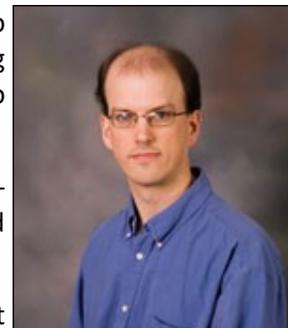
As part of implementing the Statistics major, the department needs to choose a name for the Medallion award to be given each spring to the top graduating senior in Statistics. As is traditional in academic settings, the issue will be settled by a public debate, followed by an audience vote. The debate will be moderated by Dr. Yimin Zhang (see p. 11 for more on her!), with the cases for the various candidates being presented by me (arguing that the award should be called the David Blackwell Award), Dr. Michael Posner (arguing that the award should be called the Florence Nightingale Award), and Dr. Paul Bernhardt (arguing that the award should be called the Gertrude Cox Award). Please join us at 3 PM on October 30 to hear about the candidate names and to add your input to the decision!

Zoom link for debate: <https://villanova.zoom.us/j/93216117380>

Another upcoming event, scheduled for October 23 at 3 PM, is an opportunity to hear directly from faculty members about the seminars and elective courses that we will be offering in the spring. Nearly a dozen faculty members will be in attendance to answer your questions about their courses.

Zoom link for course event: <https://villanova.zoom.us/j/94853527963>

Good luck in your classes this fall! Thanks for being a part of our department!



Dr. Jesse Frey
Dept. of Mathematics and
Statistics Chairperson



I pledge to keep the Villanova Community safe and healthy by:

- *Putting Community First* by considering others when making decisions and doing my part to keep myself and other healthy and safe
- Wearing a mask in public and shared spaces
- Practicing good personal hygiene, and cleaning and disinfecting frequently touched surfaces
- Following social distancing guidelines in all my interactions
- Self-monitoring and reporting any COVID-19 symptoms
- Limiting non-essential travel
- Holding my fellow community members accountable and reminding them to put *Community First*
- Acting respectfully and caringly in my interactions



Fall 2020 Calendar

Aug 17 (M)	Classes Begin
Oct 8 (Th)	Midterm grades due (Noon)
Oct 9 (F)	Advising begins
Oct 28 (W)	Last day for withdraw (WX)
Nov 4 (W)	Registration begins
Nov 23 (M)	Final day of classes
Nov 24 (T)	Reading Day
Nov 30—Dec 5	Final exams
Dec 8 (T)	Final grades due (Noon)

Spring 2021 Calendar

Jan 25 (M)	Classes Begin
Mar 15 (M)	Mid-Term
Mar 17 (W)	Grades Due (Noon)
Apr 1 (Th)	Easter Recess after last class
Apr 5 (M)	Classes Resume
May 3 (M)	Final Day of Classes
May 4 (W)	Reading Day
May 5-11 (W-T)	Final Examinations
May 14-15 (F-S)	Baccalaureate & Commencement



Printer's down!



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Spring 2021 Electives

MAT 4270 Numerical Analysis – Dr. Charles Ashley

Numerical analysis is the study of computing approximations to mathematical problems. We study methods to approximate the roots of equations, derivatives, integrals, differential equations, and systems of equations to name a few. The methods often involve producing a sequence of approximations so questions of whether the sequence converges and how fast it converges are studied. This course will count at a math major's second analysis requirement. The software Maple will be used to help make our approximations, though students may use other software if desired.

Prerequisite: MAT 1505

Counts as second analysis course

STAT 4310 Stat Methods – Dr. Elise Pasles, Dr. Bright Nsoawa, Dr. Michael Posner

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, correlation, and ANOVA.

Prerequisite: MAT 1505 (concurrency allowed)

Counts as a math elective

STAT 4315 Applied Statistical Models – Dr. Paul Lupinacci

This course dives into regression models and analysis of variance (ANOVA). It is intended to be a follow-up course to STAT 4310 – Statistical Methods. The regression part of this course will cover simple and multiple linear regression, including prediction, correlation, model building, multicollinearity, influential observations, and model fit. The ANOVA part of this course will cover ANOVA for designed experiments, including completely randomized, randomized block, and factorial designs. The statistical programming language R will be used extensively in this course.

Prerequisite: STAT 4310

Counts as a math elective



STAT 4380 Data Science – Dr. Paul Bernhardt

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, 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 (STAT 1230, STAT 1250, STAT 1430, STAT 4310, STAT 1313, or similar).

Counts as a math elective



STAT 4480 Data Mining – Dr. Jiangtao Gou

Technology advancements now allow companies to capture and store large amount of data in databases and data warehouses. With so much raw data, organizations urgently need tools that allow them to effectively sift through these enormous datasets and extract actionable information to help them optimize businesses. Predictive modeling is used extensively in businesses to identify risks and opportunities associated with a set of conditions from data. This course will focus on predictive modeling via learning how to use various data mining tools such as neural networks, decision trees, classification and prediction algorithms etc. in the context of most common business applications. Students will be expected to use state-of-the-art industrial strength data mining software to analyze real-world data and make strategic recommendations for managerial actions.

Prerequisite: STAT 4310

Counts as a math elective

MAT 5200 Number Theory – Dr. Nathan Corwin

Number theory considers properties of integers. For example, some of the natural numbers 1, 2, 3,... are prime (like 2, 3, and 5), while others are not. How are the prime numbers distributed? In this course we will study sequences (like the Fibonacci numbers), congruences, the fundamental theorem of arithmetic, Pythagorean triples, Diophantine equations, some basic cryptology, and quadratic reciprocity.

Prerequisite: MAT 2600



“If at first you
don’t succeed
try two more
times so that
your failure is
statistically
significant”
- Unknown



STAT 5700 Math Stats I – Dr. Elise Pasles

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.

Prerequisite: MAT 2500

Counts as second analysis course

STAT 5705 Math Stats II —Dr. Michael Levitan

This is a course on the theory of statistical inference. Key topics include the law of large numbers, the Central Limit Theorem, point estimation, maximum likelihood estimation, consistency, sufficiency, interval estimation, sampling distributions, hypothesis testing, order statistics, and Bayesian statistics. This course should be of interest for any student who wants to do a graduate degree in statistics or who wishes to understand the theoretical foundation for the standard methods of applied statistics.

Prerequisite: STAT 5700

Counts as a math elective

MAT 5920 Topic: Dynamical Systems – Dr. Douglas Norton

This course consists of an introduction to various aspects of the field of Dynamical Systems. We begin with discrete dynamical systems: the iteration of real functions and the qualitative behaviors that result. We then survey other topics such as systems, qualitative theory of differential equations, cellular automata, chaos (not just my teaching style!), and various applications, depending upon the interests and backgrounds of the participants. Homework may involve computations, explorations, proofs, or exposition. Each student (in consultation with the instructor) will select a topic for further exploration. Topics may range from abstract to applied, theoretical to computational, in areas discussed in class or in approved complementary areas of the field. Both a written paper and a presentation to the class are required portions of the individual research projects.

Prerequisite: some experience with abstractions and/or proofs will help, such as Foundations, Advanced Calculus, Topology, or one of the Algebras

Counts as second analysis course



Spring 2021 Seminars

MAT 5900-001 Mathematics and Social Justice – Dr. Bruce Pollack-Johnson

Jane Addams said, “In the unceasing ebb and flow of justice and oppression, we must all dig channels as best we may.” For us, this means turning to mathematics. In this capstone seminar for math majors, we will use mathematical and statistical models, logic, reasoning, and other tools to understand and work towards social justice. We will consider the individual/personal, small group, organizational, political (city/town, state, country, multi-country, etc.), and societal levels as we explore essential questions such as: what do we mean by “social justice”? How does mathematics inform how we could structure things differently to bring about more social justice? How can we increase the level of social justice in our lives and in our world at all levels? Mathematical and statistical topics presented will depend on the interests of the students in the class, and could be drawn from game theory, social inference, voting systems and power indices, math modeling, statistical inference, multivariable thinking and data visualization, casual inference, fair division, gerrymandering, the Gini index of economic inequality, and utility theory. Students will work on projects related to social justice, perhaps in partnership with local or larger organizations, such as nonprofits, and will make presentations both about work on their projects and on math/stat topics related to individual projects or the theme of the course.

“Mathematics is the art of giving the same name to different things”

- Henri Poincare

MAT 5900-002 Cryptology – Dr. Amanda Knecht

Cryptology is the study of techniques of secure communication between two parties assuming the presence of a third party trying to eavesdrop on the conversation. It is constantly used in our modern lives when we make phone calls, pay by credit card, send emails, or even purchase Bitcoin. The National Security Agency is the largest employer of mathematicians in America, and they hire us as cryptographers. Many areas of mathematics, including Number Theory, Arithmetic Geometry, and Probability Theory, are used in modern crypto-systems. We will learn about some of the famous modern systems together, and then everyone will individually research a system or aspect of cryptology they find most interesting.

Prerequisite: MAT 3400 and one of MAT 3300 or MAT 3500

This seminar will be taught synchronously online.

**CATS
CATS
CATS**

MAT 5900-003 Projects in Applied Math – Dr. Peter Muller

Gerrymandering, building a traffic roundabout, eradicating a disease, medical imaging, boarding an airplane, voting, social influence, finding a meeting time that works for everyone, sending a secret message, treating cancer, the stock market. What do all of these things have in common? They all can inspire mathematical questions.

Applied mathematics is an exciting array of areas that connect mathematical concepts to problems in other disciplines. The application most people associate with math is physics. However, as seen above, applied mathematics has connections to many other fields such as biology, chemistry, economics, politics, social justice, medicine, and more! In this seminar, you will have the opportunity to explore your non-mathematical interests through a mathematical lens. You will learn how to relate these interests to mathematical questions. Through team projects, you will also develop collaboration skills, presentation skills, and writing skills.

It is hard to say what areas of math you will encounter. Differential equations and linear algebra are usually the foundation for many applied math problems, but depending on the application, you may find yourself deep in graph theory, combinatorics, analysis, operations research, or some other kind of math.

Prerequisite: MAT 2705, MAT 3300, and MAT 3400



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



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



Mathematics Learning And Resource Center (MLRC)

Phone: (610) 519-MLRC (6572)

Location: 204 Falvey Library

Hours: Sunday 6:30-9:00pm

Mon-Thurs 11:00am-9:00pm

Dates: Aug 24— Sept 3

Sept 8—at least Nov 24

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

Check out our web page at www.villanova.edu/mlrc for more MLRC info regarding Villanova math courses, booking appointments, math links, and MLRC email.

Resources for the Fall 2020 Semester:

Free Face-to-Face Tutoring

By appointment only Bring Wildcard, face mask, computer, homework, and other notes

Online Session by Appointment

30 min to 2 hour live sessions; no limit to the number of sessions that can be booked; must be booked at least 2.5 hours in advance

Virtual Drop in Tutoring

Available to answer quick questions; allows students in the same math/stat class to receive group help

Course Software Access and Support

Free Review Materials for:

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

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—Alex Molino and Mia Cunningham

Treasurer: Alissa Schembor

Secretary: Jeongbin Park

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!

The club is planning to host virtual game nights, and we are also investigating having a virtual tour of the Museum of Math in NYC .

On Friday, November 6, at 2:00pm, the Math Club will be hosting a virtual tour of the NSA Museum in Annapolis Junction, MD.

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.

2020 Officers:

President—Aileen Miller

Vice President—Sarah Philbin

Treasurer—Lauren Brown

Secretary—Lauren Garrity

Meetings for AWM are biweekly at 7pm. To join or request more information, please contact amille91@villanova.edu.

Thinking about a Summer 2021 internship?

Not sure how, when, or where to look for opportunities?
Then please attend this informative, virtual Internship Workshop.



Wednesday, November 11, 2020, from 2:00pm to 3:00pm

Kate Szumanski, Director of Professional Development in the College of Liberal Arts and Sciences, will lead a virtual presentation via zoom to help you understand the internship process.

You will also learn how in-demand Mathematics and Statistics students and graduates are in the workplace across a variety of industries.

Please RSVP by completing the [attached form](#)

THANK YOU!



Faculty Spotlight

**Congratulations to Dr. Kathryn Haymaker, Dr. Elise Pasles, and Dr. Yimin Zhang
on their recent promotions!**

Dr. Kathryn Haymaker

Dr. Katie Haymaker has been a member of the Department of Mathematics and Statistics at Villanova since 2014. She received her Ph.D. and M.S. from the University of Nebraska-Lincoln, and her bachelor's degree from Bryn Mawr College. Katie considers being a professor her dream job. Co-advising the student chapter of the Association for Women in Mathematics has been a highlight of Dr. Haymaker's time at Villanova. Her math research is in the field of error-correcting codes and applied discrete mathematics. She has co-authored three research papers with Villanova students. She enjoys teaching calculus, senior seminar, graduate courses, and many more in between. Katie was part of the committee that developed *MAT 1000: Mathematical Communities*, the 1-credit course meant to build community among math majors and the department, and she has been co-instructor for that course for the last three semesters. Katie has also enjoyed teaching courses in the Villanova Program at SCI Phoenix (formerly Graterford).

Congratulations to Dr. Haymaker on her promotion from Assistant Professor to Associate Professor, with tenure!



Dr. Elise Pasles

Dr. Elise Pasles received her undergraduate degree in mathematics from the University of Pennsylvania. After working as an actuary for six years (and completing six actuarial exams), she left the corporate world to study with the eminent Professor D. Raghavaro at Temple University, where she received her Ph.D. in statistics in 2004. Elise stayed home with her children while teaching part time at Temple, Bryn Mawr, Cabrini, and Villanova. She returned to the work force full time in 2011, where she joined the Department of Mathematics and Statistics. In her spare time, she plays piano and bassoon.

Congratulations to Dr. Pasles on her promotion from Assistant Teaching Professor to Associate Teaching Professor!



Dr. Yimin Zhang

Dr. Zhang is a statistician. Her research area of interest is in ranked-set sampling, multiple comparisons, machine learning, and deep learning. She was originally trained as a mathematician in college and then obtained a Ph.D. degree in statistics from Oklahoma State University. She joined Villanova in 2014, and she teaches a wide range of statistical courses from statistical methods, theory, to data mining, and deep learning. What she enjoyed most about this position at Villanova is to see her students' success in various areas, not necessarily all mathematical or statistical, but going on enjoying success and applying their math and stats education to other places.

Congratulations to Dr. Zhang for her promotion from Assistant Professor to Associate Professor, with tenure!



Congratulations to Dr. Levitan on 50 years of teaching at Villanova!

Can you tell us about your background and where you earned your degrees?

I was born and bred in Brooklyn. Occasionally, I'd go see a baseball game at Ebbets Field and watch my Brooklyn Dodgers childhood hero, the guy with number, nah, you figure it out. One factor is the smallest perfect number and the other factor is 1 plus that number. I went to Erasmus Hall High School. (Two of the original donors were Alexander Hamilton and Aaron Burr. You may recall one shot and killed the other. No, I did not know them!) There were some obscure people whose names you may know who were in Erasmus when I was. Let's see, a minor musician named Neil Diamond, another person who sang, Barbra Streisand, and some guy who played chess. What was his name? Oh yeah, Bobby Fischer. I never lost a game to Bobby. Of course, I never played him. I went to RPI (Rensselaer) as an undergrad in math and then got my Master's and Ph.D. at the U. of Minnesota where I skated and played Frisbee on outdoor ice hockey rinks in the warm frozen tundra of Minneapolis. Go Golden Gophers.

What was the first class you taught at Villanova? Can you provide a look back in time and describe the times in 1970?

I began teaching at VU in the summer of 1970 after leaving my position at Drexel. As I recall, it was a first-year calculus course. I'm afraid, with my grade book still in my office, my mind is a blur. (Good excuse!) As for the 1970's, making copies of exams for class was a bit more involved than it is today. True, I no longer had to hire a scribe to copy them, but collating pages was something to be done by hand. The collator looked like a wire rack clothes dryer, where I floated the paper into various sections. Think flat paper airplanes.

In the 1970's I taught the first Operations Research course in our department, primarily focused on Linear Programming. One of my students in the grad version of that class was someone you may have heard of, Joe Pigeon. He was also burdened with having me for Theory I, Theory II and perhaps even Probability. Can't remember without my grade book. How quaint, as everything is stored on paper. I also taught the department's first Queuing (or Queueing) Theory course. In the late 1970's, I took my first sabbatical and taught at the University of Western Australia. Talk about an experience to savor!

In the 1980's, I went in an entirely new direction, as a book caught my eye, "Overcoming Math Anxiety." This was a time when not many women typically entered disciplines having to do with math. In my high school, I got an award for something math related, a slide rule tie clip. Subtle, really subtle! After I read that book, I offered a one credit course in our department called "Math Anxiety Workshop." It was meant for people who were brave enough to admit their fear of math was holding them back. Not surprisingly, the majority of the students were women. Initially, I team-taught the course with a psychologist from VU's Psychology Department; eventually, I taught it myself. It was far removed from anything I had ever done. My goal was not to teach them math, but rather for them to see how they were holding themselves back from the subject. They didn't have to learn to love it, just to recognize they could do it.

Did you have a mentor at Villanova University when you began your tenure here?

I had no mentor when I arrived. In fact, I was dropped into the deep end of the pool, as I was told I would now be director of the Applied Statistics Graduate Program, a position I held for more than 30 years. I got virtually no training, so I was flying by the seat of my pants. At the time, I was one of the two full-time faculty members in our department who taught graduate statistics. The others were all part-time people who worked at various positions in industry.

What has been your favorite course to teach?

I love teaching courses involving probability. While there are many examples where your intuition leads you toward a solution, what excites me are those problems where your intuition is confounded. Problems where you expect unique solutions may ultimately recognize differing definitions of “random,” thereby producing “different” solutions. There are geometric probability problems that unexpectedly produce the Sierpinski triangle, along with a host of other “Sierpinski-ish” versions. I enjoy discussing the unexpected realities of the Benford distribution and think about poor Simon Newcomb who discovered that distribution first, a good 50 years earlier, and has not yet received his due. There is the joy of learning about nontransitive dice, that having second choice when choosing your “winning” die is better than having first choice. And think of the glorious troubles Reverend Thomas Bayes has caused. And let’s not forget, Edward Simpson, (no relation to Homer) and all the trouble he too has caused. A paradox by any other name would smell as sweet. Ah, the joys of aggregation! I guess I really enjoy teaching the “Why” rather than the “How.”

How has the typical Villanova student changed over the 50 years?

Typical Villanova students keep getting younger. Of course, it has nothing to do with my age.

What has been your best memory?

There isn’t one particular memory. My best memories are the times when I’m teaching something, and, all of a sudden, it’s as if you can see the virtual lightbulbs begin to glow above the students’ heads . . . as they finally get it, regardless of what it is. Alternatively, it can happen as it did last week in my grad class. There is nothing like a student who has boundless curiosity. Students were stunned when they saw his solution, and they asked, “How can that be?” I wrote emails to friends and family saying, “This is why I teach!” It was exhilarating.

What advice would you give one of your peers who is just starting as professor at Villanova?

Teach the material you thoroughly enjoy, and hope your enthusiasm is infectious (if you’ll pardon the use of a word with the potential to do severe harm). Also, be willing to extend yourself into something unexpected. Serendipity can be a crowd-pleaser!

It is very fitting that you are a Statistician, and in your 50th year, Villanova now has a Statistics major. Would you like to add anything to this statement of progress?

It is rewarding to see that more people are recognizing the value of statistics. It’s not surprising that my math anxious students may still refer to it as sadistics. I recently saw an article in “Significance” about the history of a statistic we take for granted, namely, the mean. It had a bad “rep” in the beginning. But eventually, people came around. I don’t know that statistics, itself, had such a reputation, but it’s rewarding to see so many students showing such interest. Its applications have grown in areas, unimaginable. It’s wonderful that a movie like “Moneyball” could generate such excitement.

Continued on the next page

Congratulations to Dr. Levitan on 50 years of teaching at Villanova!

Continued from the previous page:

What interests or hobbies do you have that you enjoy when you are not teaching? We know chess, tennis, AAUP, plays are a few of your favorite things□.

Hmmmm, what can I say? Regarding chess, as I said, Bobby never defeated me, and in tennis, I never lost a match at Wimbledon. I get energized with my jousting with the administration over the three pillars of the AAUP: academic freedom, tenure and faculty governance. Actually, I have recently contacted another AAUP, although I refer to it teasingly as the OZ AAUP, namely, the Australian Association of University Professors. Perth, Western Australia has been my home away from home. I have been in contact with their AAUP president for some time now. He is a renowned professor from the University of Sydney. Theirs is only a few years old while ours began in 1915. I anticipate more communication, and in February, the new president of the national AAUP, Irene Mulvey (who happens to be a mathematician – perhaps there is a bit of rabble rousing in the discipline) and I will be speaking to their newly created organization.

And now for something completely different. Given my age, I have been fortunate to have adult children. My son and I now do strength training exercises together over zoom with a personal trainer, no more than 6 to a class. In fact, two of the other four members of our class are professors from Lebanon Valley College. I'm the geezer of the group! Lots of fun with the benefit of careful exercise and watchful eyes ensuring that exercises are done properly and within one's physical capabilities. I am feeling physically better than I have in years, and a two-day a week connection with my son is a fringe benefit with a surprising impact on our relationship. He lives down south, and previously we would see one another about every three months. I can't help but to sound like a father at this point. This is relationship 2.0 with an improvement neither of us expected to grow from what we enjoyed in version 1.0. Serendipity lives!

Thank you for your generosity and your interest,
Michael



Alumni Spotlight

Tasha Boland

I'm currently a part of the Actuarial Leadership Development Program (ALDP) at MassMutual. Through the program, I rotate to a new team every 18 months to learn different actuarial skills and gain new perspective on how the various actuarial functions work together. I really enjoyed my first rotation in Financial Planning and Analysis, and so far have found my second rotation in Variable Annuity Pricing really interesting as well. There are also many opportunities for leadership development outside of my day-to-day work that make being a part of the ALDP all the more valuable! For example, I managed an intern this past



summer, presented my work to the actuarial community, and have coordinated various networking events. I've completed all the requirements to be an Associate of the Society of Actuaries and am working towards becoming a Fellow of the Society of Actuaries.

Tasha graduated from Villanova in 2018 . She doubled majored in Math and Economics, and was Department of Mathematics and Statistics' recipient of the 2018 Emil Amelotti Award Medallion for Academic Excellence

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

Garey Hall, top 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)

Congratulations to Dr. Alexander Diaz-Lopez, whose contributions were recognized in the September 2020 Notices of the AMS (American Mathematical Society)!

Latinxs and Hispanics in Mathematical Sciences



Alexander Diaz-Lopez

Alexander was born and raised in the wonderful archipelago Puerto Rico. There, he spent his early years playing sports, video games, and board games with his cousins and sister. While he was always fond of mathematics, it wasn't until senior year of high school that he seriously began thinking of a math career, mainly because he needed to choose a major to apply to college. Not knowing what "mathematics" meant at the time, Alexander decided to major in "Pure Mathematics" and get a teaching license. In the process, interactions with professors Frank Morgan, Reyes Ortiz, Edray Goins, Ivelisse Rubio, and Juan Ortiz, made him realize his passion was to study and research mathematics and teach students at the college level. After going through SMALL and MSRI-UP summer programs, Alexander finished his Bachelor's degree at the University of Puerto Rico, Mayagüez and then his Masters' and PhD degrees at the University of Notre Dame, under the guidance of Matthew Dyer. Since then, Alexander has been involved in several initiatives/organizations such as: SACNAS, Lathisms, Notices of the AMS, MAA Project NEXt, Kinesis Foundation, Villanova's DREAMS and Co-MaStER programs, among others. As of 2020, he is Assistant Professor of Mathematics at Villanova University.

Alexander's research is in the area of Coxeter groups, particularly from an algebraic combinatorics point of view. Coxeter groups can be realized as groups of reflections of certain geometric structures called root systems. The most common examples are dihedral groups, symmetric groups, and Weyl groups of semi-simple complex Lie algebras. While symmetric groups S_n are well-studied, often many of the results regarding S_n can be nicely explained from a Coxeter group point of view or can be extended to other Coxeter groups. Lately, Alexander has been studying peaks of permutations, peak and descent polynomials, and their analogues to other Coxeter groups.

Alexander has served as mentor for several groups of students. Notably, the students that participated in MSRI-UP 2013, SAMS 2014, and Villanova's 2018-2019 CURM Research Group, 2018 and 2019 DREAMS, and 2019-2020 Co-MaStER participants. Alexander is passionate about providing opportunities for students to explore and engage in meaningful mathematical experiences.

"Hispanic Heritage Month is a time to celebrate the culture and contribution of Hispanics and Latinxs to the United States of America. In a country that is currently deeply divided among ideologies and whose leader promotes negative stereotypes of our people, this is a time to rally together, support each other, showcase our contributions, and send a message to the world that love, unity, togetherness, and warmth is and will always be more powerful than hate, insults, and selfishness."

Lathisms was founded in 2016 in order to showcase the contributions of Latinx and Hispanic mathematicians during Hispanic Heritage Month, which is celebrated in the United States from September 15 and October 15 every year. During this time, we feature/reveal a prominent Latinx/Hispanic mathematician daily. See all the featured mathematical scientists at LATHISMS.ORG.

Thanks to the American Mathematical Society for support of Lathisms.