

The SUM Times

MARCH 2013

SPECIAL POINTS OF INTEREST:

- **Message From the Chairperson**
- **Spring Semester Dates to Remember**
- **Fall 2013 Math Elective Classes**
- **PI DAY INFO**
- **Join the Villanova Math Alumni and Student Group on LinkedIn!**
- **Math Learning and Resource Center**
- **PROFESSOR PUZZLE to win PRIZES!!**

Message from Dr. Norton

Spring Break is already over, and we are solidly into the month of March. Going "in like a lion and out like a lamb" reminds us of the vast swings and opportunities March can afford. As Dickens describes in *Great Expectations*, we often face "one of those March days when the sun shines hot and the wind blows cold: when it is summer in the light, and winter in the shade." 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 you march onward, through the semester and/or through life, may the traditional powers of the two gemstones for the month of March serve you: aquamarine is said to cool the temper, keep the wearer level-headed, and guarantee safe voyage, while the bloodstone, sometimes called the martyr's stone, is said to have healing powers. As Zola says, "The truth is on the march and nothing will stop it." As you march on with and toward your own truth, travel safely, find healing, and stay level-headed – but don't be afraid to throw in a little March Madness.



Dr. Douglas Norton
 Dept. of Mathematics and
 Statistics Chairperson

Become a fan of the
 Department of
 Mathematics and
 Statistics at
 Villanova
 University
 page on
 Facebook.



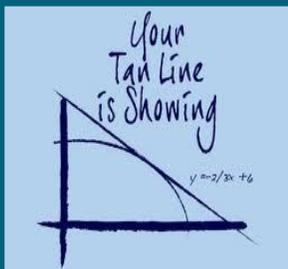
HAPPY SPRING Students and Faculty!

Spring
 Semester
 Dates To
 Remember:

Mar. 14(T)	Pi Day Bake Sale and Pizza Party
Mar. 15 (F)	Registration Advising Begins
Mar. 27 (W)	Easter Recess begins after last class
Apr. 2 (T)	Classes Resume
Apr. 3 (W)	Last Day for Authorized Withdrawal (WX)
May 2 (Th)	Final Day of Classes
May 3 (F)	Reading Day
May 4-10 (Sat-F)	Final Examinations
May 13 (M)	Final Grades Due (Noon)
May 18-19 (Sat-Sun)	Baccalaureate and Commencement



Fall 2013 MAT Electives



There are 10
kinds of
mathematicians.
Those who can
think binarily and
those who
can't...

Solving equation by one Blondie:

$$\frac{1}{n} \sin x = ?$$

$$\frac{1}{x} \sin x =$$

$$\text{six} = 6$$

MAT 2930 Section 001 History of Math (A. Gluchoff)

This course gives an account of the historical forces that shaped the development of mathematics from the times of the ancient Greeks to roughly the beginning of the 20th century. We will use the text "Journey's Through Genius" by William Dunham. Each class meeting will feature a "Great Theorem" from the book and will explore its proof and related mathematical matters while giving some background on the historical context in which the work occurred. Topics such as the relation between classical Greek geometry and the later developments of algebra and analytic geometry, the role of Euclid's Elements, the distinction between pure and applied mathematics, and the advent of calculus, and what constitutes "modern" mathematics will be discussed.

MAT 4310 Section 001 Statistical Methods (M. Posner)

Dr. Posner's section of Statistical Methods in Fall 2013 will be run as a flipped/inverted classroom. The course content is the same as the regular MAT4310 course (data displays and summarization, probability distributions, point and interval estimation, hypothesis testing, categorical data analysis, regression and correlation). Students will be expected to watch provided videos or read the textbook to learn content prior to class and will be required to complete an online assessment. Class time will be spent reviewing the material, as necessary, and working through guided activities and class projects. This class is particularly suited for students who are capable of self-paced learning and independent work and are interested in a project-based, rather than lecture-based, class. While there are no statistical prerequisites, this course would be particularly appropriate for students who are already familiar with some of the material from the course. Prerequisite: MAT1505.

MAT 4310 Statistical Methods Sections 002, 003, 004, 005 (J. Pigeon, E. Pasles, P. Bernhardt)

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 foundations 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 5400-001 Complex Analysis (F. Hartmann)

Algebra of complex numbers, analytic functions, Cauchy- Riemann equation, Laplace equations, conformal mapping, integrals of complex functions, Cauchy's theorem, power series, Taylor's theorem, Laurent's theorem, residues, entire functions. Prerequisites: (MAT 2500 and MAT 2600)

MAT 5700-001 Math Statistics I (J. Pigeon)

Topics covered in MAT 5700 include probability, random variables, joint distributions, expected values, covariance, correlation, the moment generating function, Chebyshev's inequality, and important families of random variables. Students who are interested either in statistics or in actuarial science should strongly consider taking this course. There is a substantial overlap between the course syllabus and the syllabus for the first actuarial exam. **This course in Fall 2013 will count as a second analysis course.** Prerequisites: MAT2500 and MAT2705

MAT 5920-001 Topics: Advanced Linear Algebra (T. Feeman)

I think I meant to call this course Applied Linear Algebra. Anyway, here's the idea: In MAT 3400 (Linear Algebra), we learn a lot about vector spaces and linear transformations, but have scarce little time to learn about the many applications of these concepts that exist in the real world. This course will attempt to remedy that shortcoming of MAT 3400. Possible applications of linear algebra to be explored: Markov processes; algorithms for creating ratings and rankings (e.g., Google's PageRank); least squares approximation; matrix methods in digital image processing; singular value decomposition of a matrix; QR factorization; Latent Semantic Indexing (for search engine text retrieval); other things (not sure yet). Prerequisite: MAT 3400

Don't forget to make an appointment with your advisor prior to your registration date/time. All advisors have their office hours posted at their office.

MAT 5930-001 Graph Theory (A. Woldar)

Graphs (meaning point-edge incidence systems, which have nothing to do with the graphs we study in calculus) are ubiquitous in the pure and applied sciences. Examples such as the Traveling Salesman Problem and the Chinese Postman Problem illustrate the diverse use of edge-weighted graphs (called networks) to analyze deep yet practical problems. Other common applications of graphs include tournament scheduling and room-scheduling. In our course we will study these applications, but our main focus will be on the purely theoretical aspects and properties of graphs. Speaking to the latter, these will include embedding graphs in orientable and non-orientable surfaces, characterizing graphs in terms of their spectral properties, addressing questions of the existence and non-existence of graphs in terms of feasible parameter sets, and much more.

MAT 5900-001 Seminar in Mathematics (A. Deanin)

Frequently seminar is offered around some particular topic or within some mathematical discipline. This is a colloquium style seminar, where each participant develops their own chosen topic throughout the semester. This note is to start you thinking about what you will choose to study. Is there a course that you particularly liked that you would like to see more about? Is there a course that never got offered when you could take it? Would you like to apply some course ideas you have worked with in an environment to relate it to your potential employment? Would you like to investigate some aspect of mathematics education with your advanced insights and understanding of the subject content? Together as a class, we will make all these projects happen and appreciate their interactions.

Job and Internship Information



Office for Undergraduate Students (OUS) and Career Services are great resources for any students interested in job or internship opportunities. Information will also be posted on the new Dept. of Mathematics and Statistics at Villanova University page in Facebook. Students should also fill out a profile on LinkedIn (www.Linkedin.com) to make other networking connections.

GoNOVA is a web-based career management system to help you manage your career development process. All undergraduate students have an account. Your username is your full Villanova banner id. Freshman will be uploading in October.

For Alumni, Graduate School Students and Transfer Students, you will have to register for an account. You will receive a confirmation email once your account has been activated.

To login, please go to <http://villanova.experience.com> This will direct you to the Villanova University login page. At the top of the page, type in your username and password and click Enter.

From the home page, you will see important messages and instructions from the career center. Please read these messages carefully!

To start, please complete the following initial steps:

Complete your profile by clicking on "View/Edit Profile Data" listed under the "Profile" heading in the top navigation bar. The more complete your profile is, the more we can help you connect with opportunities!

Upload a resume by clicking on "Upload a Document" listed under the "Documents" heading and following the simple steps to upload a resume. Your resume must be in Word or .rtf to begin the conversion process.

Publish a resume to a Resume Book for recruiters to view your information.

Click on "**Career Center Calendar**" listed under the "calendar" heading to view upcoming events and opportunities offered by the career center.

If you're ready to begin looking for opportunities, click on "**Job Search**" listed under the "Jobs & Internships" heading to conduct a search.



*In LinkedIn, search for the newly formed group
"Villanova Mathematics and Statistics Alumni and Students"
 and request to **join to network and make the connection!**
 Suggest this group to other LinkedIn connections.*

THE WORLD FAMOUS PROFESSOR PUZZLE!

Just accurately match as many of the fun facts with the right Villanova Math Professor as you can and bring your answers to the Math office in SAC 305 for the chance to win a MATH T-SHIRT and a reusable MATH CUP & STRAW COMBO!!

The Professors:

1. Steve Chiacchiere
2. Michael Posner
3. Elise Pasles
4. Joseph Pigeon
5. Charles Ashley
6. Fritz Hartmann
7. Klaus Volpert
8. Paul Pasles
9. Timothy Feeman
10. Paul Lupinacci
11. Amanda Knecht
12. Alice Deanin
13. Alan Gluchoff
14. Jesse Frey
15. Doug Norton

The Fun Facts:

- A. Only male member of my house growing up never to have shot a hole-in-one on the golf course
- B. Has 1 dog, 2 cats, 3 chickens
- C. Avid crowd surfer in college
- D. "Played" in the Elite Eight round of the NCAA basketball tournament
- E. Held driver's licenses in South Carolina, North Carolina, Virginia, Ohio, and Pennsylvania.
- F. Wife has won two cars, a trip to a Hollywood premiere of Twilight, and two round-trip tickets to San Diego, among many lesser prizes
- G. A retired competitive ballroom dancer. Competed against Dancing with The Stars' Max Chmerkovsky.
- H. Been around the world twice and would like to do it again
- I. Does the London Times Cryptic Crossword puzzle every day
- J. Watched the 'Lord of the Rings Trilogy' over 200 times
- K. Presented a paper entitled "Sherlock Holmes and the Scientific Method: A Statistical perspective" to the Baker Street Irregulars (Sherlockian Society)
- L. Grammy award winner Boz Scaggs is my cousin
- M. Once (a few years ago) wrote and performed a rap song during a summer camp
- N. Has traveled to all 50 states
- O. Plays the bassoon and piano

Check out Michael Posner and his classes' parody of Mike Posner's "Cooler Than Me": "STATS CAN BE COOL YOU SEE"

<http://www.youtube.com/watch?v=4rKQtDb4VjU>



**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: Marie O'Brien, 610.519.4809
Lorraine McGraw, 610.519.4850

**Mathematics Learning
And Resource Center
(MLRC)**

Location: 211 Falvey Library

Dates: September 4– October 11
October 22–November 19
November 26– December 13

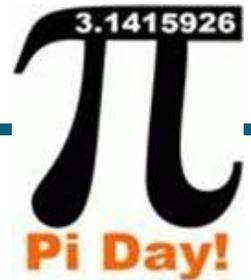
Hours: Sunday 6:30-9:00pm
Mon.-Thurs. 1:00-5:00pm
& 6:30-9:00pm

Phone: 610-519-MLRC (6572)

*Check out our web page at
www.villanova.edu/mlrc for more MLRC info
regarding Villanova math course, tutoring
schedules, math links, and MLRC email.*



Villanova Math Club



There will be two activities for Pi Day at Villanova on Thursday, March 14:

First: Pi Day Bake Sale



When: Thursday, March 14th, 2013 Time: 11:00 am to 3:00 pm
Location: Connelly Center

How you can help...

1. Drop off a baked good to the math office in SAC 305 on Wednesday, March 13th.
All kinds of baked goods are accepted and appreciated.
2. Stop by the bake sale to make a donation and pick up a sweet treat

All of the money we receive is being donated to The Starfish Foundation which was started by Villanova alum and math major Beth Awalt. This non-profit organization provides scholarships and guidance to high school students in extreme poverty who wish to continue their education. Your help will encourage and inspire these students to reach their dreams

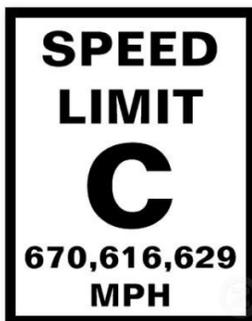
Second: Pi Day Pizza Party

Time: 12:00 noon to 1:30 pm
Location: Math Office, St. Augustine Center 305



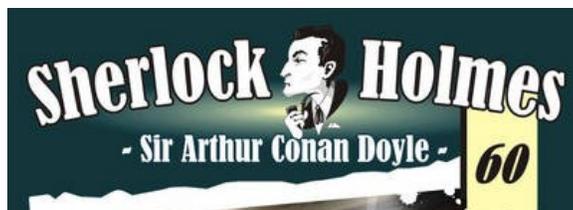
RSVP To Lorraine.mcgraw@villanova.edu if you plan to attend the luncheon.

Alice Deanin:

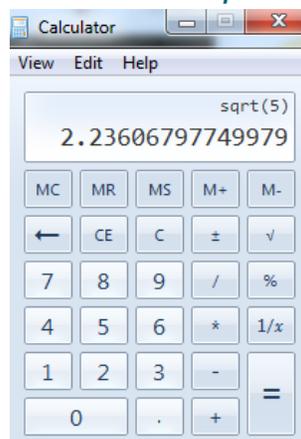


Steve Chiacchiere:

Joe Pigeon:



Klaus Volpert:



what's *your* favorite number?

Doug Norton:

As for a favorite number, like a good parent, I don't really have a favorite; I like all of my numbers, each in its own way. Sometimes I like the feel of the naturals, the integrity of the integers, the relational sense of the rationals. Sometimes I prefer to be a little irrational or feel the allure of the transcendentals. Some days I like to stay firmly rooted in the reals, some times a little more imaginary. Sometimes I like things a little complex, and when that's not enough, I'll occasionally lean toward those exotic quaternions. Sometimes I like the empty possibilities of zero, the unity of 1, or the "life, the universe, and everything" of 42. Pi usually comes around once in a while, and e is often a different natural choice. I'm often attracted to a bazillion, other times to forty-leven. No, not forty-seven, Mr. Spell-Checker; I actually mean forty-leven. Look it up. When it comes to numbers, how do I love the[m]? Let me count the ways. Alas, they are uncountable!

Email lallen4@villanova.edu with your favorite number to be featured in the next SUM TIMES!!