

Villanova Department of Mathematical Sciences

Σ SUM TIMES**Welcome Back to the 2007-2008 Academic Year!**

The Department of Mathematical Sciences would like to welcome the students, faculty, and staff back to the 2007-2008 academic year. The SUM (Society of Undergraduate Mathematicians) Times is the undergraduate math newsletter to help math majors stay up to date on what is happening in the Math Department as well as fun math jokes and puzzles. If you have any questions please stop by the Math Department office in Room 305 St. Augustine Center or call 610-519-4850. From all of us in the Math Department, we wish you the best for a successful start to the new school year and are always here to assist you.

Math Club

Villanova's Math Club has been inactive for the past year, but a collective effort between the advisor, Dr. Joseph Pigeon, leaders of the club, and spirited members are looking to change that this year! There a few big things planned: The Math Club is hoping to work on a service project by making flash cards for underprivileged schools and after school programs. We are also looking to organize a career night comprising of speakers who have careers in mathematics and students who are willing to share their past internship experiences. The Math Club also has plans to redecorate the MLRC, and hold Munch & Math's where students get together to do homework and have snacks! Students of all majors are welcomed to join and share any ideas they might have to enhance the Math Club. If there are any questions, please feel free to email amy.tam@villanova.edu.

Attention Freshman & Sophomores! Don't forget that you can get math help in the MLRC!

You can get free tutorial help, work on projects and assignments in groups, use the computer lab for Maple, Minitab and Excel projects, and use computer program to refresh in Algebra, Trig, Calculus and Statistics!

The MLRC is located on the second floor of Old Falvey (next to the Writing Center)

Hours:

Sunday: 6:30-9:00 p.m.

Monday -Thursday: 1:00-5:00 p.m. & 6:30-9:00 p.m.

You can call the MLRC during their hours of operation by dialing 610-519-MLRC

September 2007

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Fall Career Fair

Sept. 19 (This Wednesday!)
3 - 7 pm in the Pavilion. Don't miss this great opportunity to meet potential employers for jobs and internships. Be sure to have your resume critiqued in career services and bring copies of it to this great event. Bring your wildcard and swipe it at the register to create a professional pre-printed name badge!

Contact Information

SAC Room 305
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

First Assignment of the New School Year for our Staff & Faculty Members:
What did you do this summer?
 See if you can match which staff or faculty member had which great experience!

- | | | | |
|--------------------------|---------------------|--------------------|------------------|
| A. Marie O'Brien | E. Douglas Norton | I. Paul Pasles | M. Joyce Longman |
| B. Michael Posner | F. Charles McCallum | J. Joseph Pigeon | |
| C. Bob Jantzen | G. Charles Ashley | K. Lorraine McGraw | |
| D. Bruce Pollack-Johnson | H. Robert Styer | L. Klaus Volpert | |

- Had \$25 ice coffee & ice cream in one of the crowded cafes in the famous Piazza Umberto Island of Capri (Italy), simply known as the Piazzetta. It was an unforgettably beautiful July Day.
- Finished building a tree house 20 feet high with his 15-year-old son, and slept in it with him the last night while on their vacation in New Hampshire.
- Swung like a Tarzan in Costa Rica (and has the pictures to prove it!)
- One night this summer while visiting Jackson, Wyoming, he enjoyed a dinner of prime rib of buffalo, an elk chop and venison sausage. Believe it or not, it was delicious (especially the elk chop)! On the same trip, he also got a speeding ticket in St. Anthony, Idaho.
- Drove 2400 miles through 8 national parks, including Bryce Canyon and Yellowstone, swam in an ice-cold lake in the Grand Tetons National Park, experienced 116 degree heat in Las Vegas, dropped off his 18-year-old daughter for a three-month service project in the Washington Cascades, in a place without TV or telephone or access road.
- Watched as his twins learned how to stand.
- Traveled to 5 countries, namely Poland, Lithuania, Latvia, Estonia, and Russia and found the people to be incredibly friendly and helpful.
- His wife had a baby boy on the first day of summer.
- If not at Villanova working, they were relaxing on the beach in Avalon, NJ or boating in the bay area with their family
- Was thrilled to visit the place where 'America was born"... Williamsburg, VA
- Spent his summer compassionately planning how make Advanced Calculus LESS painful than usual so that his students will not have to resort to any of the 42 proofs mentioned on page 3 of the SUM Times.
- Became a grandfather for the first time.
- Hosted a Swiss teenager for a month. They saw downtown Philadelphia, downtown New York, the New Jersey Shore, Amish country, toured a sawmill in central Pa, saw Romeo and Juliet, a Sight and Sound production of Creation with over 100 animal actors, and an Upper Darby production of High School Musical.

Answers: C, D, G, I, L, B, M, I, A, K, E, F, H

Would you like to contribute to the next issue of the SUM Times?

If you would like to submit an article to be published in the next issue of the SUM Times please e-mail Lorraine McGraw at lorraine.mcgraw@villanova.edu or Marie O'Brien at marie.obrien@villanova.edu. We welcome ideas and suggestions!



My Summer as an Actuarial Consultant By Amy Tam, Senior Math Major

"...Oh, so what exactly are you going to do with a math degree?" I'm sure many of you have heard this line before, and, frankly, I didn't have an answer because I didn't know what I wanted to do. Did I want to become a statistician? Or should I try working in the financial markets? Maybe I should go into teaching? Or how about becoming an actuary? There were so many choices and decisions that I used this past summer as an opportunity to determine where my interests were.

I moved into my apartment in New York in the beginning of June, and got mentally prepared for work as an actuarial consultant at Watson Wyatt. I was anxious my first day of work since many of the other interns were actuarial science majors and already had more knowledge about the profession than I did. However, Watson Wyatt's program was so effective that my fears soon subsided. They held training sessions that started from the very basics; they gave us a mock client that walked us through the whole process of what a typical actuary would generally do in a year that we wouldn't have otherwise seen in a 10-week long program; they also had presentations about all the other departments of Watson Wyatt!

Not only did Watson Wyatt's internship program provide a good representation of what a typical actuarial consultant would do, but the culture there was great! The people that I worked with were so nice and incredibly supportive that I wasn't afraid to go to some of the leading consultants for help and advice.

Perhaps someone may ask me now, "So, what are you going to do with your math degree?" After my summer with Watson Wyatt, I may have an answer: I'm seriously pursuing a career as an actuary, but keeping my options open!

42 Methods of Mathematical Proof

From Dick A. Wood in The Mathematics Teacher November 1998 and from Steve Phipps

If the proof of a theorem is not immediately apparent, it may be because you are trying the wrong approach. Below are some effective methods of proof that may aim you in the right direction.

1. Proof by Obviousness: "The proof is so clear that it need not be mentioned."
2. Proof by General Agreement: "All in Favor?..."
3. Proof by Imagination: "Well, We'll pretend its true."
4. Proof by Convenience: "It would be very nice if it were true, so ..."
5. Proof by Necessity: "It had better be true or the whole structure of mathematics would crumble to the ground."
6. Proof by Plausibility: "It sounds good so it must be true."
7. Proof by Intimidation: "Don't be stupid, of course it's true."
8. Proof by Lack of Sufficient Time: "Because of the time constraint, I'll leave the proof to you."
9. Proof by Postponement: "The proof for this is so long and arduous, so it is given in the appendix."
10. Proof by Accident: "Hey, what have we here?"
11. Proof by Insignificance: "Who really cares anyway?"
12. Proof by Mumbo-Jumbo: "For any $\epsilon > 0$ there exists a corresponding $\delta > 0$ s.t. $f(x) - L < \epsilon$ whenever $x - a < \delta$ "
13. Proof by Profanity: (example omitted)
14. Proof by Definition: "We'll define it to be true."
15. Proof by Tautology: "It's true because it's true."
16. Proof by Plagiarism: "As we see on page 238 ..."
17. Proof by Lost Reference: "I know I saw this somewhere ..."
18. Proof by Calculus: "This proof requires calculus, so we'll skip it."
19. Proof by Terror: When intimidation fails ...
20. Proof by Lack of Interest: "Does anyone really want to see this?"
21. Proof by Illegibility: "Ƴª Ð þ þæ"
22. Proof by Logic: "If it is on the problem sheet, then it must be true."
23. Proof by Majority Rule: Only to be used if General Agreement is impossible.
24. Proof by Clever Variable Choice: "Let A be the number such that this proof works."
25. Proof by Tessellation: "This proof is just the same as the last."
26. Proof by Divine Word: "And the Lord said, 'Let it be true,' and it came to pass."
27. Proof by Stubbornness: "I don't care what you say! It is true!"
28. Proof by Simplification: "This proof reduces to the statement, $1 + 1 = 2$."
29. Proof by Hasty Generalization: "Well, it works for 17, so it works for all reals."
30. Proof by Deception: "Now everyone turn their backs ..."
31. Proof by Supplication: "Oh please, let it be true."
32. Proof by Poor Analogy: "Well, it's just like ..."
33. Proof by Avoidance: Limit of Proof by Postponement as t approaches infinity.
34. Proof by Design: "If it's not true in today's math, invent a new system in which it is."
35. Proof by Intuition: "I just have this gut feeling ..."
36. Proof by Authority: "Well, Bill Gates says it's true, so it must be."
37. Proof by Vigorous Assertion: "And I REALLY MEAN THAT!"
38. Proof by A.F.K.T. Theorem: "Any Fool Knows That!"
39. Proof by vigorous handwaving: Works well in a classroom.
40. Proof by seduction: "Convince yourself that this is true!"
41. Proof by accumulated evidence: "Long and diligent search has not revealed a counterexample."
42. Proof by Divine Intervention: "Then a miracle occurs ..."



Mark your calendars...



Undergraduate Studies - Fall Semester 2007		
August		
21	Tues	Walk-In Registration (Part-Time Studies)
23-26	Thurs-Sun	New Student Orientation and Registration
25	Sat	Saturday Classes Begin for Part-Time Studies Only
27	Mon	Classes Begin
31	Friday	Last Day for dropping and/or adding classes and last day for requesting Satisfactory/Unsatisfactory
September		
3	Mon	Labor Day - No Classes
8	Sat	Open House: Liberal Arts
14-16	Fri-Sun	Parents' Weekend
21-23	Fri-Sun	St. Thomas of Villanova Celebration Events
23	Sun	Open House: Engineering College
29	Sat	Open House: School of Business
October		
6-7	Sat-Sun	Homecoming
7	Sun	Open House: Nursing College; and Legacy Day
12	Fri	Mid-Term; and Deadline for Spring study abroad
15	Mon	Semester Recess
22	Mon	Classes Resume
24	Wed	Grades Due (Noon)
26	Fri	Advising Begins
28	Sun	Open House: Science & Technology
TBA		Registration Begins for Spring 2008
November		
2-4	Fri-Sun	Special Olympics
14	Wed	Last Day for Authorized Withdrawal without Academic Penalty (WX)
20	Tues	Thanksgiving Recess Begins after last class
26	Mon	Classes Resume
December		
11	Tues	Deemed a Friday Class Day and will follow a Friday Class Schedule for UG Day Classes only
13	Thurs	Final Day of Classes
14	Fri	Reading Day
15-21	Sat-Fri	Final Examinations (No exams on Sunday Dec. 16)