Math Festival

The Math Instinct: The Amazing Mathematical Abilities of Animals, Birds, Insects and Babies and What Can We Learn From Them.

Dr. Keith Devlin will speak at the M*A*T*H Colloquium on Wednesday April 26th, at 4p.m. during the Math Festival Day.

Some biologists recognize Keith Devlin's name because there's an extinct possum named after him, but most people know him as "the Math Guy" on National Public Radio's Weekend Edition, where he explains the math behind - among other things - why giving an extravagant gift of no lasting value, such as an expensive meal, will maximize the success of a budding romance.

When he takes his Math Guy hat off, he directs a major research center at Stanford University, does his own research (over 75 published research papers), and writes books (24 to date, several of them for a general audience). He earned a Ph.D. in Mathematics at the University of Bristol in 1971 and has taught at several universities in Europe and North America.

The mathematics department continues celebrating Mathematics awareness month by a public talk at noon, April 27th in Salazar 214. The talk is sponsored by the California Nu, our own chapter of Pi Mu Epsilon, the National Honorary Mathematics Society. Dr. Ezra (Bud) Brown, professor of Mathematics at Virginia Tech, will be the speaker. He has published widely in number theory and combinatorics, has published in the Pi Mu Epsilon Journal, and is an award winning teacher and writer.

The topic of the day will be “Elliptic Curves, the Silver Bullets of Modern Mathematics.”

Professor Brown is allowing the audience to choose which of the following topics he will present.

His talk connects elliptic curves to such things as:
- Doughnuts and 49/20
- A page from Diophantus
- Magic Squares, finite geometries and inflection points
- Congruent numbers and other diophantine problems
- Fermat’s Last Theorem
- Factoring Large Primes
- Chocolate-Key Cryptography

The Pi Mu Epsilon talk is open to all students and faculty. Chapters from UC Davis, UC Berkeley, CSU Sacramento, and Santa Clara have also been invited to attend. This talk is sponsored in part by a grant from the Pi Mu Epsilon National Honorary Society.

-Leslie Banta

NEW LOCATIONS
Math Department - Darwin (Summer 2006)
Colloquium - Stevenson Hall 1002
Math Fest Dinner
Cotati Vets Bldg.
8505 Park Ave, Cotati
**Faculty Activities**

**Sam Brannen** is on sabbatical in spring 2006; he is writing a text book (with co-author Jean Bee Chan) on neutral, Euclidean and hyperbolic geometries.

**Jean Bee Chan** published a paper "Musings on the Two-Body Problem" in Focus of the Mathematical Association of America, December, 2005. She gave an hour talk on "A View of an Art Gallery" at the Northern California, Nevada, and Hawaii Section of the MAA Meeting at Stanford University on February 25, 2006. And she is writing a text book (with co-author Sam Brannen) on neutral, Euclidean and hyperbolic geometries.

**Izabela Kanaana, Jerry Morris and Brigitte Lahme** were awarded a grant for $1800 to run the second Northern California Undergraduate Mathematics Conference from the MAA. The conference will take place on April 8 at SSU.

**Jerry Morris and Julie Bonds** were awarded the Faculty Appreciation Award by the Student Athlete Advisory Committee.

**Jerry Morris and Brigitte Lahme** published an article together with Elias Teubassi from the University of Arizona in the MAA Notes Series #69 "A Fresh Start for Collegiate Mathematics - Rethinking the Courses below Calculus. The article is titled "The Case for Labs in Precalculus".

**Elaine McDonald and Brigitte Lahme** published the article "Infinity and Beyond - a Mathematics Class for Life Long Learning" in the January Issue of Focus, the newsletter of the MAA.

**Brigitte Lahme and Brian Jersky** gave invited talks at the Spring Recreational Math Conference of California Math Council - Community Colleges in Stateline, Nevada.

**Brian Jersky** has been appointed Dean of the College of Science at St. Mary's College of California in Moraga, so he is leaving SSU at the end of June. He is excited at the opportunity for him at his new job, but very sad to leave the department that has been his academic home since he graduated from Cornell in 1992.

**Izabela Kanaana**, as a project NEXT fellow, attended the MathFest Meeting in Albuquerque, NM in August. She designed a new, upper division course titled "Selected Topics in Cryptography", which is an introduction to classical and modern methods of cryptography as well as to its mathematical foundations. The 11 students enrolled in this class are also learning how to use computers to solve cryptography problems. Izabela and Brigitte Lahme are presented a workshop titled "Let's Help Postman Pat" about Eulerian cycles in graphs, at the March 18th FYH conference this March.

**Rick Luttmann** continues to serve on the Academic Senate as Senator-at-Large and is standing for election to a three-year Senate term representing the School of Science and Technology. He is the school representative on the Enrollment Management Council, the Academic Affairs Budget Advisory Council, and the Campus Climate Committee. He is the War and Peace Lecture Series host and the War and Peace Curriculum Committee chair. He is an evaluator for Project Censored and the Jack London Award, and he serves as the Coach for the SSU Putnam Team. He gave several colloquium talks at Chico State and SSU's M*A*T*H in the past few months. In addition, he is a volunteer tutor in mathematics at San Quentin State Prison.

**Sunil Tiwari** along with Dr. Steve Norwich (FNSP, SSU) has been studying the growth rate of tafoni for past few years. They have proposed a set of differential equations modeling the growth of tafoni. In the Fall of 2005, during his sabbatical, Dr. Tiwari traveled to India and visited several monuments, temples, and graveyards in the eastern coastal towns and villages of India to collect data from different types of rock surface. Dr. Tiwari also spent two months at one of the best research institutes in India, The Indian Institute of Science, where he collaborated with a colleague in the Mathematics department on a problem from linear algebra and mathematical modeling.
Congratulations to our math majors who qualified for the Fall 2006 Dean’s List

Leslie Banta
Jessica Doran
Kris Drew King
Virginia Knott
Eva Marie Oliver
Mayra Ruiz-Calderon
Margaret Sisseck
Tiffany Ward
Megan Wong
Johnathan McCue

DEPARTMENT UPDATE

In January, Lopez Bailey started as our new administrative assistant. We are all grateful to have a highly qualified assistant working in our busy department. During the summer we will be moving back into Darwin Hall. Everyone is anxious to return to the new and improved Darwin Hall and feel settled again. Students will again have their own place to study and meet with faculty in the new math lab. In Summer 2006, Dr. Brian Jersky will begin his new job as dean at St. Mary’s College. We will all miss Dr. Jersky and we wish him the best in his new job. We are all pleased that Dr. Cora Neal will be joining the math department in Fall 2006. Dr. Neal comes to SSU with extensive teaching experience and an impressive research record. Dr. Neal will be a great addition to the statistics program. Dr. Ben Ford will be the department chair starting in Fall 2006. Now that you know what we’ve been up to, we hope to get caught up with you at the math festival on Wednesday April 26th. See you there!

-Susan Herring

BE A MATH SUPPORTER

We hope you have fond memories of your time as a student in the mathematics department. When you graduated you did not leave the mathematics department. You became a mathematics department alum. As an alum, we hope you will help us continue our activities that make life in the mathematics department special. For instance, we need donations to support student travel to conferences, prizes for students who participate in the Putnam Competition and Mathematics Modeling Competition, and to support our awards ceremony and the Math Festival alumni dinner. We also have several scholarships which are always in need of donations. As we get ready to move back into Darwin Hall there will more opportunities to make a donation. Any amount you can contribute will help support our activities.

If you would like to support our activities or scholarships, please contact any member of the mathematics department or the chair of the mathematics department, Susan Herring at susan.herring@sonoma.edu or (707)664-4118. Thank you for your support.

-Susan Herring
WHISKETOWN 2005

The State of Jefferson Mathematical Congress has been taking place annually since 1972. It takes its name from the mythical "State of Jefferson" that for many decades was envisioned by citizens of Northern California and Southern Oregon that never came to be. The event is held at a campground on Whiskeytown Lake near Redding.

At the 2005 State of Jefferson Mathematics Congress, we had three academic sessions: "A Convolution Sieve and the Twin Primes Conjecture" by Jack Butts, Oregon State University; "Never Underestimate a Theorem That Counts Something" by Tyler Evans, Humboldt State University; and "Getting Students Ready for College Mathematics" Discussion Under the Oaks led by our own, Brigitte Lahme. Everyone actively listened and participated.

On the fun side, Professor Jeff Haag from Humboldt State delivered an entertaining show on kayaking in the afternoon and Professor Kentile Yates, from Southern Oregon University, guided us on star gazing. We also enjoyed swimming, tarot reading, doing Tai Chi and QiGong, hiking and jogging on our own time. The campfire gathered us together, discussing various topics, chatting with different people, making marshmallows, etc.

The most touching experience for me is the love and enthusiasm of mathematics and nature demonstrated by participants there. You can check it out for yourself at http://www.humboldt.edu/scjme/ and I look forward to seeing you there this year!

- Ai-Chu Wu

PUTMAN COMPETITION

The 66th annual William Lowell Putnam Competition took place on December 3rd 2005, and as usual Sonoma State University's mathematics department entered a team. The SSU student participants were Eric Jenne, Josh Clement, Frank Conte, Michael Duncan, and Jonathan McGuire. Along with these students, several others took the exam (at least unofficially): Dr. Rick Lautman, for many years Coach of the SSU Putnam team; Andrew McFarland, an SSU graduate who is now an adjunct faculty member for SSU while he is 'in between' his master's work at the University of Oregon and his PhD work; and Andrew's cousin David Michita, a student at Los Medanos Community College. The results of the competition have not yet been announced, but should be available near the end of March and certainly in plenty of time for our Math Festival, which will be held this year on 26 April. As usual, cash prizes will be awarded to SSU student participants who do well, and all will receive a stenciled T-shirt. In the Fall 2006 term, for the first time in many years, the department will be offering the two-unit CRNC course Math 330, "Techniques of Problem Solving," which deals with techniques for solving Putnam-style problems. Ben Ford will be the instructor.
MAA MEETING AT STANFORD

The annual meeting of the Northern California, Nevada and Hawaii section of the MAA, took place on Saturday, February 25th, at Stanford University. As usual a number of faculty and students from Sonoma State attended this event. This meeting is always a nice opportunity to make and renew acquaintances with other mathematician folks in the region.

One of the few principal speakers was our own Jean Bae Char, who bravely spoke last! Her lively and charming lecture was entitled "How to View an Art Gallery." The talk addressed the question "how many guards does it take to see every point in an art gallery?". She considered the general case of an art gallery whose floor plan is a closed connected set, then the special case that the floor plan is polygonal, then the even more special case that the floor plan has orthogonal walls. She also considered what would happen if there were "pillars" or other impediments inside the art gallery – i.e., that the floor plan is not "simply connected". She traced the history of the problem and listed some open questions.

In addition to a Student Poster Session, other talks were by Steven Rudich of Carnegie Mellon University on 'A Bird's-Eye View of the P vs NP Problem', David Eisenbud, Director of the Mathematical Sciences Research Institute (MSRI) in Berkeley on "Interpolating Polynomial functions", Don Sami of U.C Irvine on "Evolution of the Universe via Newton's Equation", and (the luncheon talk) Jim Tanton of Providence College on "Episodes in the Early History of the Lucasian Chair at Cambridge".

The Sections Distinguished Teaching Award this year was presented to Dr. Tatiana Shubin of our sister campus, San Jose State University, Dr. Shubin has lectured for our M^2A^T^M^H Colloquium several times, including a lecture on crystallography in last fall's series. - Rick Luttmann

EMERITUS FACULTY

Don Duncan, who was the founding member and first Chair of the department, lives with his wife Penny near campus. He is a tireless walker and still plays some strategic tennis. He and Penny have recently visited British Columbia and also spend time in Michigan with their daughter and grandchildren.

Clem Falbo and his wife Jean are now living in Joseph, Oregon, where they are building a very energy efficient home. He is volunteering as a tutor at the Enterprise Branch of the Blue Mountain Community College. Clem and Jean went to Yellowstone for a winter visit in February (35 degrees below zero) and they are going to Japan and Russia for a tour with the AAAS in June. His paper 'A Tale of two Problems with the Same Differential Equation' will appear in the November issue of the Mathematical Gazette, a journal that has been around for a long time. And he has refereed two papers for the College Math Journal. Clem recently established the Emmy Noether Endowment Fund for the SSU Mathematics Department. Other than all of that, he says that he is just sitting in his rocking chair.

Chuck Phillips, who was the first statistician in our department, lives 3 miles from campus with his wife Jeannie. He is an avid bridge player and has been a lifetime hiker. Over the years he has hiked the entire Pacific Crest Trail except for 75 miles in Washington and 65 miles in Oregon. He is enjoying retirement and has taken cruises to Hawaii, Alaska, and Mexico. Chuck and Jeannie also visit Victoria, B. C. regularly. In his spare time Chuck tracks his investments.

Tom Nelson lives in Santa Rosa with his wife Jeannie. He baby-sits his one-year-old granddaughter Sophie one day a week while her mother is working. Tom attended the Northern Calif Sectional Meeting of the MAA on February 25th. He is also tutoring a student in the Adult Literacy program of the Sonoma County Library. He admits to having read a lot of good books, and some not so good.
Math Club News

Even without having our “Darwin Hens,” the Math Club has been a part of some great things this year! During fall semester, we had our annual Pumpkin Carving Contest/Bake Sale and we donated a part of the proceeds of this event to the American Red Cross. In October, a group of us went camping at Whiskeytown Lake and attended the State of Jefferson Mathematics Congress. We also sponsored a trip to San Francisco State to visit their Mathematics Department and find out about their Master’s program. Each event was a great success!

This spring, we held our “Pi Day” celebration with the, always fun, “Pie Your Favorite Professors” fundraising event on, of course, 3.14. Our annual SSU Mathematics Festival is also coming up, and we are pleased and proud to co-sponsor this event with the Mathematics Department.

We are also proud to be a part of the Northern California Undergraduate Math Conference andExpanding Your Horizons, offering volunteers and other help for both of these terrific events.

What else is up with the Math Club? In addition to our t-shirts, we have added mugs to our list of goodies. There will be some still available at the Math Festival. They are clear glass with “Clearly…” printed on them ($10 each). Please get in touch with us through the Math Club website if you are interested.

-Kathy Kiely

Expanding Your Horizons Conference

The thirteenth annual Expanding Your Horizons Sonoma County conference was held on March 18 at SSU. NASA Astronaut Dr. Ellen Ochoa was the featured speaker. The Mathematics Department again played a major role in organizing the conference. Julie Bonds, Sharon Calnanis, Izabela Kanaana, Brigitte Lahme, Edie Mendez, and Mary Anne Schier helped with pre-conference planning. In addition, several Math Club students and instructors, including Elizabeth Giuliani and Andrew McFarland, staffed the “Math Puzzles” table during the lunchtime activities.

Expanding Your Horizons is an annual conference to increase the awareness of young women and their parents of the importance of adequate preparation in mathematics and science. It is designed to introduce them to the world of mathematics, engineering, and science and other fields where high school mathematics and science are required. It consists of hands-on workshops conducted by women who have chosen a career in one of these fields. Aicha Wa, Izabela Kanaana, and Brigitte Lahme from SSU Mathematics Department presented workshops this year. Lahme also made a presentation on the School of Science and Technology at the adult workshop for parents and educators.

The objectives of FYH conferences are to:

- Foster awareness of the wide range of career options in mathematics
- Provide opportunities to meet and talk with women who work in these fields
- Increase young women’s awareness of the importance of math and the need for early career exploration

You can find more information about FYH at www.fyh-sonoma.org.

-Sharon Calnanis
On March 18, 2005 the speaker registration for the first annual Northern California Mathematics conference at Seneca State University closed. On the morning of March 19 three very nervous organizers, Iliana Kanaana, Jerry Morris and Brigitte Lahrme, opened the registration email account and their jaws dropped – 30 undergraduate mathematics majors from all over Northern California had registered to give 26 talks. We were stunned.

Just a few months earlier we had applied for and were given a grant from the Mathematical Association of America to organize an undergraduate mathematics conference in Northern California. We had no idea what to expect. Would any undergraduate math students be interested in giving a 30-minute talk about a project? We figured that we would need 9 or 10 talks to run a morning and an afternoon session, and slowly we approached a critical mass of talks so we were happy.

The stars of the day were the 30 undergraduate mathematics students who gave amazing talks on a wide variety of subjects. The presentation included areas in Math History, Geometry, Graph Theory, Applications of Calculus, Voting Theory and many more. Seven students from Seneca State University gave excellent talks on a wide variety of topics.

Having learned from last year, we are planning for parallel sessions, and are very lucky to have secured John Martin from Santa Rosa Junior College to give the invited talk “The Pythagorean Postulate and the Enduring Beauty of Mathematics”.

This year, we are also working together with the California Math Council – Community Colleges, to invite community college students who are considering transferring to a CSU or UC in the fall. We will provide a forum for students and faculty to meet and talk about the different universities' math programs.

We invite all alumni and friends of the SSU Math Department to join us at the conference. Please visit our website and register for the conference: http://www.seneca.edu/math/nocalumc/

Due to a grant from the National Science Foundation, administered through the Mathematical Association of America (DMS-0441090), registration for the conference is free and we will provide morning refreshments and lunch.

We are excited that a lot of undergraduate math students in Northern California are getting research done, and we are providing a forum for them to talk about it.

-Brigitte Lahrme

The day concluded with an outstanding keynote talk by Helen Moore from the American Institute of Mathematics who spoke about mathematical applications to medicine. Dr. Moore drew in her audience with accessible examples of how familiar calculus techniques are used to model the human body's struggle with HIV and leukemia.

The preparations for the 2nd Annual Northern California Mathematics Conference are now in full swing. The conference will take place on April 8, 2006 at Seneca State University.

The SSU Math Club is helping with the preparations in advertising the conference to local community colleges and Math Clubs at other universities. They also received a grant from the Associated Students to help fund the event.
Gary Zupan, class of 1969, works as a software Engineer on advanced projects for the Army at General Dynamics in Woodbridge, VA. His degree is actually in Physics but was only one course short of a BA in Math. He resides in Philadelphia, PA.

Richard Montgomery, class of 1980, began his term as chair at UC, Santa Cruz, in July. It typically lasts 3 years. He has two grad students, potentially three, and continues to do research and publish on the three-body problem and on other amusing problems such as rolling a sphere of radius 1 around one of radius 3.

Keith Krieger, class of 1990, was married to Darcy Richardson, whom he met in calculus class, on New Year’s Eve 1988. They started their relationship with five children between them, and have four young grandchildren, whom they don’t get to see often enough. They have lived in Westerville, Ohio for three years now, where Keith is a "First VP, Consumer Risk Modeling Sr. Manager." for JPMorgan Chase. He started with Fair, Issac in San Rafael three days after graduating, and then went to work for Citibank in Long Island for two years before landing in Ohio. On reflection, he thinks the Senior Seminar led by Dr. Luttmann was the class that was most like the work Keith faces on the job: "Here’s a problem, solve it." Keith and Darcy have been away from Northern California too long, and plan to move back next year.

Janice Levasseur, class of 1994, (formerly Janice Thoni), immediately went on to graduate school, earning a MS in Applied Statistics in 1997 from UC Riverside. She has been an associate faculty member in the Math Department at Mt. San Jacinto College (Menifee Valley Campus) since 1999. She is hoping to get a full-time position in the near future. In the meantime, she keeps busy with her family: her husband Tiernan (Ty) and their two beautiful children, Ashley (3 years old) and Tanner (1 year old).

Eric Lichtenstein, class of 1996, earned an M.S. from Cal State East Bay (aka Cal State Hayward), and he recently completed his Ph.D. at U. C. Santa Barbara. He now has a tenure-track position at Notre Dame de Namur University in Belmont, CA.

Michael McJilton, class of 1998, earned his MS in Math from Cal Poly, San Luis Obispo, in the Spring 2001. He taught as a Graduate Assistant 1998 – 2001 and as a Lecturer 2001 – 2003 at Cal Poly and as an Instructor at Cuesta College from 1999 – 2003. Since August 2003, he has been an Assistant Professor at College of the Desert, primarily teaching statistics. He is currently the organizer of a competition for local high school students called the College of the Desert Math Field Day (soon to hold the third event). He got married November 12, 2005, to his beautiful wife Jennie, and currently lives with her and his stepdaughter, Megan in Desert Hot Springs (Palm Springs area).

Kevin Wortman, Class of 1998, earned his Ph.D. in geometry from the University of Chicago and proceeded to a post doctoral fellow at Cornell University. While at Chicago, he won a teaching award as a teaching assistant.

Frances Andrade Baeumer, class of 1998, earned a Master of Arts in the Teaching of Mathematics from University of Nevada at Reno in 2001. She and Boris Baeumer, a mathematician specializing in applied mathematics, got married in 1999. They moved to New Zealand in 2001 to work at the University of Otago in New Zealand. Frances teaches summer school while Boris is a full time faculty member in the Math/Stats department at the University of Otago. They now have two children, ages 4 and 2, and are expecting their third baby in October. The whole family visited the SSU department in December 2005.

Christine Latulippe, class of 2000, is expecting to graduate next May with a Ph.D. in mathematics education.

Joe Latulippe, class of 2000, is currently working on a Ph.D. in mathematics at Montana State University. His research is going well and he expect to graduate next May. He is working on modeling visual neurons. This topic is very interesting and has provided many opportunities for further research. Also, part of the program here at Montana State University has allowed him to teach many undergraduate courses ranging from Calculus to Differential Equations.

Abukuse "Aba" Mbirika, class of 2002, is currently in the University of Iowa graduate dept in Mathematics. Last August 2005, Aba passed the Master’s qualifying exams. He plans on taking the pre-Ph.D comprehensive exam on Representation Theory in August 2006. Iowa is grand. He misses the weather in Sonoma, but he bets we can’t make a snowball in mid-March as he can in Iowa.

Emily Kendall, class of 2002, works in Fremont as a Personal Financial Planning Assistant for Millar Financial, RJFS. She is currently working on completing her Securities License and beginning her education for a Personal Financial Planning Certificate (CFP).

Helene Nehrebecki, class of 2003, is now in graduate school at Arizona State University in Tempe. She has compiled a book of things she wrote, entitled, Too Much Chlorine to the Brain: A Math Comedy Memoir. She donated a copy to the department. Helene can be reached at helene.nehrebecki@asu.edu; alternatively, the Amazon website for this book is http://www.amazon.com/gp/product/1419620614/sr=8-.

Matthew Rochioli, class of 2004, works at the Santa Rosa Junior College Bookstore as a Bookstore Assistant.

Michael Laufer class of 2004, graduated with BS degrees in Mathematics and Physics. He is now in the doctoral program in mathematics at City University of New York. His article “What Do Mathematicians Do?” can be read at http://text.intangineer.com/2006/what_do_mathematicians_do.html