



# School of Mathematical Sciences

newsletter

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## Announcing the School of Mathematical Sciences

*The beginning of a new chapter in mathematics and statistics at RIT.*

The Department of Mathematics and Statistics in the College of Science has outgrown its name. A semantic dead end with little wiggle room, the word “department” no longer fit the mathematics hub, which officially has become the School of Mathematical Sciences (SMS) in the College of Science.

The new school grew from the largest academic department on campus, staffed with 53 full time and 15 adjunct faculty members. Each quarter, nearly 4,000 students enroll in the 160 sections of mathematics and statistics courses offered to fulfill general education requirements to support the science, technology and engineering programs and to meet the needs of the school’s own majors.

According to **Dr. Sophia Maggelakis**, head of SMS, the mathematics and statistics department generated more credit hours than either the College of Business or the College of Engineering, and that during the last four years, credit hours generated by the Department of Mathematics and Statistics increased by 25 percent.

Degree programs in SMS include a bachelor’s and master’s in applied mathematics, a bachelor’s in computational mathematics and a bachelor’s in applied statistics. The School’s long-term goal is to offer a doctoral program in modeling and simulation, a branch of mathematics that integrates with all STEM (Science Technology Engineering and Mathematics) disciplines, business, economics, and social sciences.

The change, led by Maggelakis, grew from a desire for appreciation and visibility of the School’s diverse functions, programs, and resources

available to the campus community and the larger community coupled with the need to streamline the administrative avalanche that has followed the Department’s growth.

“It will be more visible to our students what programs and services are available and what mathematical sciences is all about,” Maggelakis says of the reorganization.

Maggelakis also wants to change the perception that the former Department “did nothing but teach mathematics and statistics.” To address this, the School, in addition to the mathematics programs and the statistics programs divisions, has added a third division dedicated to research and outreach efforts, a vital component tied to national concerns. One example is the creation of the Summer Math Institute, slated for 2007, as a means of outreaching to the community to help improve K-12 math education by supporting math teachers and nurturing young talent.

“One of the goals of the School of Mathematical Sciences is to be part of the national effort to develop a mathematics and science-literate citizenry,” Maggelakis says.

Maggelakis sat on the Math A Regents Review Panel created in 2003 in response to the 63 percent failure rate of that year’s exam and knows that the situation must be addressed before it worsens.

The Summer Math Institute initiative dovetails with Sen. Charles Schumer’s recent bill to establish the Center for Excellence in Math and Science at Nazareth College in Rochester, NY. The Center will involve universities and colleges in the Rochester area, including RIT as an active



participant.

Another initiative is the creation of the Center for Computational and Applied Mathematics, a center that will provide an environment for research in computational and applied mathematics with a focus on developing emerging applications and involving faculty and students in applied research by organizing research groups on various topics and providing a forum for collaboration with researchers in the STEM disciplines.

Other efforts, in the nascent stage, include the establishment of an Institute for Mathematical Methods in Counterterrorism as part of a national network of institutes using mathematical models and cryptography to crack codes and analyze data.

Administratively, the reorganization will make running the School more manageable and improve communication throughout the organization, giving a voice to all faculty. It will also create an incubator for grooming leadership by distributing responsibility within the divisions. The administrative team will change from a department head and one associate department head to a head of the School (Maggelakis), one associate head, David Hart, and assistant heads representing the three divisions: Carl Lutzer, mathematics programs; Carol Marchetti, statistics programs; and Bernie Brooks, research programs. Tiffany Schwanger is the director of student support services.

## Faculty News

The article "Interpretation of the Coefficients in the Fit  $y = at + bx + c$ " by **Dr. David Farnsworth**, Professor in the SMS, appeared in the summer 2006 issue of the journal *Mathematics and Computer Education*.

The poster "Empirically-based mathematical modeling of rumor transmission within social networks" was presented at the Human and Social Dynamics 2006 Principal Investigators Meeting in Washington DC. The poster presented the ongoing research in rumor propagation by SMS faculty **Dr. Bernard P. Brooks** and **Dr. David S. Ross** and COLA faculty Dr. Nicholas DiFonzo.

SMS Assistant Professor **Dr. Raluca Felea** gave a talk to the Geophysical Inversion Workshop at the University of Calgary, August 14-18, 2006.

SMS Assistant Professor **Patricia Diute** was awarded a US Patent in January, 2006 co-authored with colleagues at the Eastman Kodak company entitled *Image specific perceived overall contrast prediction*. The invention addresses a method and system for estimating perceived overall lightness contrast for a digital image. The system combines the following five computed measures: image edge contrast; range of lightness; area contrast; average lightness of an image, relative to the viewing background; and average lightness, relative to a tone reproduction curve. The invention can be applied in digital printing systems by processing images to predict and adjust contrast. It is suitable also for projecting images on the screen using digital projectors.

## Promotions to Tenure Track Faculty

Drs. **Anurag Agarwal**, **Ephraim Agyingi**, **Wondimu Tekalign** and **Likin Simon Romero** joined the School of Mathematical Sciences in September, 2005, as Visiting Assistant Professors. They embraced the RIT community and showed their strong commitment to teaching, service and research. Effective September 2006, they each received promotion from visiting faculty to tenure track faculty as Assistant Professors. We congratulate them for their achievement and their contributions to RIT's SMS.

## Returning Faculty



**Dr. David Ross**, who was a faculty member in the School for three years starting in 2001, has returned to the School of Mathematical Sciences (SMS). In the intermediate two years, he worked for a research division of Kaiser Permanente which later branched to become

Archimedes Inc. The research he participated in involved modeling biological processes of the human body.

Dr. Ross has returned under the research portfolio that the School now offers. He is currently working on three main projects. The first is to determine the free energy of ternary mixtures of proteins within the eye (this is a collaboration with Dr. George Thurston of the Physics Department and Dr. Carl Lutzer, assistant head of SMS mathematics programs). The second is rumor propagation (this is a collaboration with Dr. Nick DiFonzo of the Psychology Department and Dr. Bernie Brooks, assistant head of SMS research programs). The third is modeling treatment of prostate cancer to try and determine optimal treatment (a collaboration with Dr. William Dale of the University of Chicago).

## New Faculty



**Dr. Chris Wahle** joined RIT's School of Mathematical Sciences in September 2006 as Assistant Professor. Dr. Wahle grew up in Chicago and completed undergraduate studies in mathematics at the Illinois Institute of Technology in 1992 and, subsequently, a Masters in Statistics in 1995. He was awarded a Ph.D. in Applied Mathematics from Northwestern University in 2003. Prior to joining the SMS, Dr. Wahle worked at Rensselaer Polytechnic Institute as a postdoc, working on conservation and combustion models.

Dr. Wahle has several publications in *SIAM*, the *Journal of Computational Physics*, and *Combustion Science and Technology*. His professional interests include multi-phase reactive flow, stability theory, numerical analysis and mathematical physics.

Dr. Wahle's other interests include fishing, ice hockey, and music. Growing up in Chicago has definitely influenced his musical tastes, which includes a "heavy dose" of the Blues and music from the 60's, especially Bob Dylan. He has also tried his hand in playing the guitar.

## Problem Corner

Starting with six colors, say black, white, red, blue, green, and yellow, how many distinctly different ways can the vertices of a square be colored? Two colorings on the square are considered the same if one square can be rotated and/or flipped over to give the other square.

## New Lecturer



**Dr. Bernadette Lanciaux** joined the faculty of the School of Mathematical Sciences this Fall as a Lecturer following a year as an adjunct professor both in the Department of Mathematics and in the Economics Department. Prior to joining RIT, Dr. Lanciaux spent 17 years on the

faculty of Hobart & William Smith Colleges in their Department of Economics where she taught mathematical economics, calculus for economists, statistics for economists and econometrics.

Following her years at Hobart and William Smith, before joining RIT, she made a major career change, shifting her interest to teaching secondary mathematics. To do this, she attended Roberts Wesleyan College to obtain a Masters degree in the Urban Teachers for Tomorrow Program. Although now teaching at the university level, she continues to maintain an interest in the teaching of mathematics at the secondary level. She particularly enjoys working with students with special needs.

Dr. Lanciaux received her Bachelors degree from Western Michigan University, with joint majors in statistics and economics, and then went to the University of New Mexico where she received a Ph.D. in economics.

Outside of the classroom she enjoys ballroom dancing; gardening; and involving herself in political campaigns at the grassroots level.

## New Lecturer



**Dr. Michael Long** was born in Panama and moved to Toledo, Ohio where he attended the University of Toledo for a bachelor's degree of education in chemistry with a minor in mathematics. He then went on to graduate school at Wayne State University in Detroit where he obtained a Ph.D. in chemistry with a graduate minor in mathematics. His thesis was "Molecular Emission Spectroscopy."

Dr. Long went on to do post doctoral work at Cornell University studying lasers, specifically "thermal Gaussian lensing." The work was very productive with many publications for the time he was there.

Afterward, Dr. Long moved to Rochester to work at Kodak where he has held numerous positions, including the commercialization of products, modeling fluid flow of clinical slides, manager of doctoral recruitment, and manager of a prototype facility where he did numerous statistical analysis. He also served as a staff assistant to a vice president and holds 17 patents in the fields of digital printing and flat panel displays.

Dr. Long went on to be an adjunct teacher in organic chemistry at Finger Lakes Community College while freelancing as international consultant for companies in Malaysia. He taught at the Chemistry Department at RIT. this year and has now moved to the School of Mathematical Sciences.

Dr. Long is married with a 15-year old son. Both he and his wife are volunteer mounted sheriff deputies and he is a volunteer ski patroller at Bristol Mountain.

## New Staff Member



In addition to growing programmatically and in faculty size, the School of Mathematical Sciences (SMS) is expanding its support staff infrastructure. In late September, the School welcomed its newest support staff member, **Tina Williams**. As an administrative Staff Assistant, Tina will provide support for Head Sophia Maggelakis, the faculty and the SMS student employment process. As the initial point of contact, many visitors to the administrative office may come to know Tina as the new "face of the School."

Tina came to the SMS with eleven years of outstanding RIT experience. For the past eight years, she had been the assistant manager of the Campus Connections Bookstore textbook department. Previously, she had worked in the Bookstore's tradebook department. Prior to working at RIT, Tina was the retail manager for a nine-store beauty salon chain in the Rochester area. "We were very fortunate to gain an employee as talented as Tina," stated Sr. Staff Assistant Shelly Cicero. "Faculty and students will appreciate her competent and caring manner."

A life-long resident of Henrietta, NY, Tina and her husband Darryl maintain an active life. They have three grown children, three grandchildren and several pets. Darryl is completing his master's degree this year and Tina is looking forward to pursuing a certificate in graphic design, thereafter. In her spare time, Tina enjoys crafting, cooking and shopping.

When asked what attracted her to joining the SMS, Tina replied that she was very interested in the growth opportunities that would be available in our evolving department's newly created position. She added that she'd like to say, "Thank you to everyone for the warm welcome received since joining the School."

### ***Alumni: Please Stay in Touch***

We are interested in hearing from you! Feel free to drop us a line to give us an update of your preferred mailing address and phone number, any career changes you've made and your "extra curricular" activities. Please let us know if you have e-mail, too. As the new edition of the newsletter becomes available on our web site, we'll send you an e-mail about it. Almost two-thirds of our readers enjoy accessing the web version rather than receiving a paper copy! Best wishes...

### **Calling for Co-ops**

Does your company need additional employees during the summer months or for special projects that may take 10 to 20 weeks to complete? That is exactly what our majors who are co-oping can do. Whether it is a single or double block co-op (10 or 20 weeks respectively), hiring a mathematics or statistics major can be a win-win situation. Your company's work will be accomplished by a qualified, skilled employee and our majors will receive real-world experience—something for their resumes as well as to assist in paying for their education. If you would like additional information, e-mail Director of Student Services Tiffany Schwanger at [tdpsma@rit.edu](mailto:tdpsma@rit.edu).

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**What season can it be? Photo: Prof. David Crystal**