

# The Math Log

Newsletter of the University of North Dakota  
Mathematics Department

## Kris Presler Gives Talk

Kristopher K. Presler visited the UND Mathematics Department on September 12, 2008, and presented the talk "Actuarial Science: A Career Choice Worth Exploring." Kris received his B.S. and M.S. degrees from the UND Mathematics Department in 1990 and 1992, respectively, and is currently an Associate Professor in the Mathematics Department at the University of Wisconsin-Eau Claire. Kris also serves as the director of the actuarial science program at UW-Eau Claire. Before coming to Eau Claire, Kris had served as an actuary at Thrivent Financial in Appleton, Wisconsin.

Kris also holds an M.A. degree in mathematics from the University of Wisconsin-Madison, where his studies included substantial coursework in actuarial science and statistics. In 1999, he completed the examination requirements for Fellowship in the Society of Actuaries. He did this by passing twenty-two actuarial professional exams.

It was nice to see Kris again! We hope that he continues to do well, and we hope he can return for another visit sometime soon!



Kris Presler

## GTA Graduates

**Chen Yao** will receive his master's degree from the Mathematics Department at the end of the Fall 2008 semester. The title of Chen's independent study report is "The Algebraic Topological Proof of the Fundamental Theorem of Algebra," and his adviser is **Dr. Shuzo Takahashi**. Chen is aware of the current worldwide financial crisis, but he says that he is still interested in gaining work experience in the financial industry.

## Several New GTA's Join The Mathematics Department

Several new Graduate Teaching Assistants joined the Mathematics Department this fall.

**Prashant Agnihotri** is a graduate student in UND's Department of Electrical Engineering, but he serves as a GTA here in the Mathematics Department. Prashant is a native of India, and he received his undergraduate degree in electrical engineering from the Rajiv Gandhi Technical University.

**Megan Garrity** earned a bachelor's degree with a major in mathematics from the University of Minnesota. She enjoys many sports and outdoor activities and is particularly interested in the sports here at UND. She is also an active member of her church. Megan is originally from Hibbing, Minnesota.

**Joseph Anton Kucera** is originally from Brainerd, Minnesota. Joseph earned three degrees before coming to UND. He holds an A.A. degree from Central Lakes College in Brainerd, a B.A. degree from Jamestown College (Jamestown, North Dakota), and a Pre-Theology degree from Cardinal Muench Seminary in Fargo, North Dakota. At Jamestown, he majored in mathematics and secondary education. In 2003, after completing his B.A. and teaching experience, Joseph entered the seminary with the goal of becoming a Catholic priest. But later, after four and one-half years, he decided to discontinue formation. Joseph's hobbies include golf, hunting, and fishing.

## New Lecturer Comes to the Department

**Timothy Prescott** has begun work here in the Mathematics Department. Tim is from Tucson, Arizona. He earned a Ph.D. in mathematics and probability from University of California-Los Angeles just this year. Tim's wife Cindy is an Assistant Professor in the History Department here at UND. She does research relating to women and material culture in the American West.

## Where They Are and What They Are Up To

This issue of the *Math Log* contains recent news from Mathematics alumni as well as stories about their past experiences here at UND.

**Brent Christensen** (1994) is currently living in West Fargo, North Dakota, and is employed as an actuary.

**Madhulika Krish** (BBA, 1984) lives in De Queen, Arkansas, and works as a family practice physician in De Queen. You can reach Madhulika at (870) 642-4343.

**Laura Wagner** (M.Ed., 2008) is teaching at Central High School here in Grand Forks. This fall she is teaching Algebra II, Pre-Calculus, and Applied Mathematics (consumer math), and next spring she will also be teaching one section of Discrete Mathematics. Laura says that “the faculty, staff, and students at Central have been wonderful to work with, and I am enjoying my time here, despite missing UND and all of my College Algebra students!”

**Sandra (Orley) Paur** (BS, 1968) is an Associate Professor of Mathematics and Director of the Mathematics Honors Program at North Carolina State University. Sandy says she has fond memories of the classes in mathematical analysis that she took from **Ed Nelson** here at UND. She says that “he has been a role model for me in all my years of teaching, as have been **Milt Winger**, **Lyle Mauland**, and **Tom Robinson**. Their cogent explanations, attention to detail, and high standards, as well as their concern that their students master the mathematics they taught, were what I kept in mind as I went about the difficult task of learning how to teach students of all levels and interests.”

After graduation from UND in 1968, Sandy went on to Indiana University with her husband Dick. At Indiana, Sandy earned a Ph.D. in mathematics, and Dick earned a Ph.D. in physical chemistry. Sandy and Dick then moved to North Carolina, where Sandy took a job as an Assistant Professor of mathematics at North Carolina State. Dick went to work for the U.S. Environmental Protection Agency a few months later.

In 1980, Sandy undertook the task of directing the Mathematics Honors Program at North Carolina State. At the time, Sandy says, there were about six or seven students in the program, with one or two graduating every year. After ten years, the Honors Program had twenty students, and now, in 2008, the program has

approximately thirty-five to forty students, with about twelve to fifteen graduating each year.

In 2002, Sandy received an outstanding teacher award from North Carolina State, and in 2007, she received the Faculty Advisor Award, an award given to just one faculty member at NC State each year.

Sandy and Dick have two children: Kathy, who recently earned a Ph.D. in mathematics from Harvard, and Andy, who is a junior at East Carolina University, majoring in political science. You may reach Sandy and Dick at 5313 Tuliptree Lane, Raleigh, NC 27612, or by telephone, at (919) 782-8190.

**Al Olson** (BA 61, MA 65) has been living in Pagosa Springs, Colorado, since his retirement in 2004. He remembers taking courses from **Woodrow McBride**, **Philip Rognlie**, **Ed Nelson**, **Charles Hatfield**, **Ken Hankerson**, and **Lyle Mauland**.

After receiving his B.A. in 1961, Al served in the U.S. Army. He returned to UND in 1963 to pursue a master's degree in mathematics. He was offered a three-quarter-time graduate teaching assistantship and taught algebra as well as first semester Calculus and Analytic Geometry. **Dr. Tom Robinson** served as Al's thesis adviser. Al says that he always appreciated Tom's patience and encouragement.

After receiving his M.A. in 1965, Al continued on as an instructor in the UND Mathematics Department for one year. He then left UND and went to work for General Motors. He says that he was astounded that GM would hire someone with a background in pure mathematics to do applied mathematics and engineering, but before long, he was writing computer programs to model and optimize the design of compressor and turbine rotors for gas turbine engines. His teaching experience had given him a good grounding in analytic geometry, which he used to define the geometric and stress models. Al has also used mathematics for creating computerized combat models, solving operations research problems, structural engineering, creating a computerized mapping model for the United States Geological Survey, and many other lesser projects.

Al says that after leaving UND, he found that his opportunities were as good as or better than those of people coming from the big name universities. He says that this was because “we had a faculty that was involved with and cared about the students!”

**Howard A. Larson** (MS 1962) is retired and lives in Idaho Falls, Idaho. He studied in the UND Mathematics Department from 1957 to 1962, when he was “disgorged” with an MS degree! He also completed a major in physics. While an undergraduate student, he worked nights as a telegrapher in the relay telegraph office in downtown Grand Forks, earning approximately \$2.00 per hour. Later, after beginning his graduate studies, Howard worked as a teaching assistant here in the Mathematics Department. He shared an office with fellow TA’s **Wesley Christensen, Tom Weston, and Tony Brown.**

Howard says that **Dr. George W. Starcher**, the president of UND at the time, was “kind enough” to let him use the parking lot outside his home to practice archery. He also writes: “I see by the *Log* that you destroyed my home in the Quonset village that I lived in while attending UND—merely to have a building for the Mathematics department. Shame, Shame!” (Editor’s note: See the Spring 2008 issue of the *Math Log*, in which UND Mathematics Professor Emeritus **Dr. Tom Robinson** describes the UND campus at the time of his arrival here in 1958. Tom says that in 1958, Quonset huts stood near the present location of Witmer Hall, the current home of the UND Mathematics Department.)

After receiving his M.S. degree from UND in 1962, Howard went to work at a nuclear reactor facility in Idaho. He then undertook graduate study at the University of Washington and earned a Ph.D. in nuclear engineering. After this, he went to the Argonne National Laboratory, where he worked for sixteen years, and finally to Idaho State University, where he served as a Professor of Engineering for five years. At Idaho state, Howard advised graduate students and did a lot of teaching. Much of this involved computers, mathematics, and physics.

Howard has one or two pieces of advice for students: “Don’t be afraid to expand your interests, and . . . if you intend to do technical work, never let a semester go by without taking a course or teaching one, whatever it may be inside or outside of your field.”

You may reach Howard A. Larson at 1974 St. Clair Road, Idaho Falls, ID 83404.

### Faculty Footnotes

**Greg Brockman** and **Ryan Zerr** have published the article “Asymptotic behavior of certain Ducci sequences” in the *Fibonacci Quarterly*.

**Cheryl Halcrow** and **Myrna Olson** have published “Adjunct Faculty: Valued Resource or Cheap Labor?” in *FOCUS on Colleges, Universities, and Schools*.

**Michael Minnotte, Stephen Sain, and David Scott** have published the chapter “Multivariate visualization by density estimation” in *Handbook of Data Visualization*.

The article “Thomas P. Branson (1953-2006): Professor of Mathematics, University of Iowa,” by **Doojin Hong, Larry Peterson, Oleg Svidersky**, and several other coauthors, has appeared in the journal *Acta Applicandae Mathematicae*.

### Math Log Editor Talks with Dean of UND School of Aerospace Sciences

As many of you may know, **Dr. Robert Kelley** succeeded **Dr. Charles Kupchella** as president of the University of North Dakota this past summer. Kupchella retired after nine years of service here at UND. You may also know that prior to the hiring of Kelley, the University interviewed five applicants for the open presidential position. One these applicants was **Dr. Bruce Smith**. Smith is the dean of UND’s John D. Odegard School of Aerospace Sciences and a 1970 graduate of the UND Mathematics Department.

Although he did not receive an offer for the job of president, Dr. Smith nevertheless has very strong academic and business credentials. He leads a college



Aerospace Sciences Dean Bruce Smith

with an annual budget of over \$55 million, and the aviation program at this college boasts a training fleet of over 120 aircraft! Prior to his service as Dean of Aerospace Sciences, Smith also assumed positions of high responsibility in private industry and in the U.S. Air Force, and he has published a wide variety of research reports and articles.

I thought that you might be interested in hearing Dr. Smith's story, so one day this past summer, I went over to his office and paid him a visit. We discussed his childhood, his experiences here in the Mathematics Department, and many of the other things he has done in the course of his career.

### **Life in St. Louis Park and at UND**

Bruce Smith grew up in St. Louis Park, Minnesota, a large suburban community just west of Minneapolis. His father worked as a mechanic in a "Pure Oil" brand service station. Although Bruce's mother attended classes at the University of Minnesota, neither of his parents graduated from college.

In 1965, Bruce came to the University of North Dakota on a football scholarship. He played offensive center for the team and was named an "All-American." Years later, in 2001, he was inducted into UND's Athletic Hall of Fame as a member of the 1966 football team. He was inducted into the Hall of Fame again in 2003 as an individual for football and track.

In the classroom, Bruce studied mathematics, education, and a variety of liberal arts subjects. He says that his mathematics teachers were excellent. He specifically mentioned **Ken Hankerson, Lyle Mauland, Woodrow McBride, Tom Robinson, John Whitcomb, and Walter Will**. He took the two-semester geometry sequence from McBride and especially enjoyed the study of spherical geometry. He also took two semesters of statistics. Bruce pointed out that his teachers here seemed to get along well with each other. "They were a congenial group."

It was at this time that Bruce got married. Bruce and his wife Ann were married in 1969. The two had met several years earlier, and they have now celebrated their thirty-ninth wedding anniversary.

Bruce graduated from UND in 1970, completing a double major in Mathematics and Education. He is particularly proud of his study of mathematics, a subject which he considers challenging! He says that his mathematical training and liberal arts education helped him in his later research and graduate study. He also pointed out to me that he was free of debt after gradua-

tion. His football scholarship and temporary jobs had covered all of his college expenses. Without the football scholarship, he might not have been able to attend UND.

### **Learning to Fly**

In addition to mathematics and football, Bruce was also interested in flying. As a young boy, he heard the sonic booms made by high speed airplanes. He knew that somewhere in the sky someone was flying at supersonic speed, and he decided that he wanted to become a pilot someday and do the same thing himself. To accomplish this dream, Bruce made aviation part of his undergraduate college experience here at UND. He joined the U.S. Air Force Reserve Officer Training Corps (ROTC), and he enrolled in one of the very first flight training classes at what would later become the John D. Odegard School of Aerospace Sciences. He received his pilot's license after only thirty-six hours of actual flying experience!

After finishing at UND, Bruce went to work for the U.S. Air Force at Williams Air Force Base, near Phoenix, Arizona. For the first couple of years at Williams, Bruce underwent further pilot training. He then became a flight instructor, teaching in classrooms as well as in the air. While continuing with his job at the Air Force base, he pursued graduate study at Arizona State University. In 1975, he received a master of arts degree in secondary education.

It was at about this time that Bruce began attending research conferences, i.e. large formal meetings in which researchers gather to give presentations and to discuss research. Much of this research involved topics related to aviation, such as, for example, the process of pilot training. Bruce also began to publish informal research reports and more formal articles in scholarly journals. He says that his mathematical training helped him with this immensely. Computers were not widely available at the time, and Bruce's research methods had to rely more on the use of calculus and other tools.

Shortly after receiving his master's degree, Bruce became an instructor at the U.S. Air Force Academy in Colorado Springs, Colorado. He continued with the Air Force until 1978, when he took a position with the Canyon Research Group, at Fort Rucker, in southeastern Alabama. At Canyon, he worked on research involving nighttime flight navigation of military aircraft. He also continued with his professional development. Bruce says that he "always wanted to earn a doctorate," and in 1979, while continuing in his position at Canyon, he began work on a Ph.D. in Instructional Design and Development at Florida State University, which is located in Tallahassee, Florida, not far from Ft. Rucker.

## Ph.D Studies at Florida State

Bruce says that his coursework at Florida State involved a significant amount of probability and statistical analysis, and that his experience and study here in the UND Mathematics Department made much of this easy for him. Another factor contributing to his success at Florida State was his previous research experience. Students in Bruce's Ph.D. program were expected to formally publish the results of their dissertation research in a scholarly journal. The fact that Bruce had an established record of publication made this hurdle much easier for him to overcome. Bruce also told me a story about a certain faculty member of another department at Florida State who had previously heard of him through his publications. This faculty member let Bruce use his computerized flight simulator, a computerized apparatus which allows a person on the ground to simulate the experience of flying an airplane. Bruce felt that the availability of this flight simulator was a key factor in facilitating his work as a Ph.D. student.

Bruce simultaneously pursued his Ph.D. studies and his employment at Canyon Research until 1981. In that year, he left Canyon and began work at Seville Training Systems Corporation in Pensacola Florida, which again is not far from Tallahassee. At Seville, he directed various instructional design projects relating to military aviation. In 1984, he received his Ph.D. in Instructional Design and Development from Florida State, graduating Phi Kappa Phi, and then took a senior level position at the Singer Corporation in Binghamton, New York.

## Sewing Machines and the Space Shuttle

The Singer Company makes many of the sewing machines that people around the world use in home sewing, but it has also moved into some very different activities. Bruce went to work at Singer's Link Flight Simulation Division, an organization that produced aircraft flight simulators. Bruce rose to the level of Director of Training for the Link Flight Simulation Division, a division which included 7,200 employees. Some of the training programs involved NASA's space shuttle and the Air Force's B-2 Stealth Bomber!

In 1991, Bruce took a position with Hughes Training, Inc., in Arlington, Texas. This position involved the design, implementation, and supervision of training programs. In 1998, he moved to Delta Airlines, where he became the Director of Technical Operations Training. Bruce was responsible for, among other things, the training programs for 10,700 airline mechanics!

## Returning to UND

Bruce started at Delta in August of 1998, but events in Grand Forks would soon draw him back to North Dakota. **John D. Odegard**, the dean and founder of UND's School of Aerospace Sciences, was terminally ill. Odegard's death came after Bruce had been at Delta for only six weeks. Bruce was very much interested in returning to UND, and he applied for the dean's position. After a lengthy search process, Bruce succeeded Odegard as dean in December of 1999.

Odegard was a legendary figure. The School of Aerospace Sciences began in 1968 as a modest aviation department within UND's College of Business and Public Administration. Under Odegard's leadership, the Aviation Department grew and eventually became part of the School of Aerospace Sciences, a new college within the University. By 1998, the aviation program itself had become one of the top aviation training programs in the world. Replacing a legendary figure would be difficult for just about anyone, but in any case, the School of Aerospace Sciences continues to do well under Bruce's leadership.

## Lifelong Learning

Just before the end of my meeting with Bruce, I asked him if he had any advice or words of wisdom for students or for people in the middle of their careers. He responded by saying that we should all be lifelong learners. "Throughout my career I continually prepared," he said. One of the ways that he prepared, of course, was to attend formal classes and work toward advanced degrees. But he also emphasized the importance of publishing the results of one's research. If you have a new way of doing something, try to publish it somehow.

Most of us, of course, will have careers that are far more modest than that of Bruce Smith. It may seem that research, publications, and advanced academic degrees are irrelevant to what many of us do. But we can all be lifelong learners in one way or another. This is one of the lessons of a university education, and it is one of the lessons we can learn from Dean Bruce Smith's experiences!



## The Pseudo-Sum

By Larry Peterson

Things are going quite well here on the UND campus. The new UND president, **Dr. Robert O. Kelley**, recently delivered the annual “State of the University” address to a live audience over at the Memorial Union Ballroom on the UND campus. Kelley reports that student enrollment is up, standing at nearly 12,750. The University continues to progress through the transition to Division I athletics. And NASA’s Space Shuttle has recently delivered an “AgCam” to the International Space Station orbiting the Earth. The “AgCam,” which was developed by UND faculty and students, will take photographs to be used in analyzing conditions on the ground back here on Earth. Kelley went on to discuss many other accomplishments of UND faculty and students over the past few months.



There are, of course, many things happening here which do not receive quite as much publicity. The Mathematics Department is currently discussing the development of a new Mathematics “capstone” course, which will allow students to synthesize ideas they have studied in several different courses. This course will fulfill part of the new “essential studies” requirements for undergraduate students here at UND. Watch for further developments!

Another curious tidbit of news you might be interested in is the NotiFind system. UND has recently implemented and tested an emergency notification system, called NotiFind. NotiFind is an automated system designed to use telephone communications and e-mail to notify the campus community of emergencies on the campus. If you have been attentive to national news over the last few years, you may begin to imagine why such a system could be needed.

There is one additional news item that you may not hear about in other newsletters that you receive from UND: During the recent presidential primary season, candidates **Barack Obama** and **Hillary Clinton** came to town and gave speeches to the Democratic Party state convention at the Alerus Center here in Grand Forks.

Regardless of how you feel about the recent elections, I wish you all the best! I hope the current economic crisis is not affecting you too severely. In any case, keep us posted on your activities! We welcome letters and e-mail messages from all of our past undergraduate and graduate students!

## Mathematics Department Faculty and Staff for 2008-2009

Anthony J. Bevelacqua .....	Associate Professor
Donna Boe .....	Word Processing Operator
Gwennie A. Byron .....	Senior Lecturer and Math Learning Center Director
John B. Collings .....	Associate Professor
Bruce G. Dearden .....	Professor
Gerri M. Dunnigan .....	Associate Professor and Associate Chair
Stuart R. Farm .....	Senior Lecturer
Thomas E. Gilsdorf .....	Professor
Cheryl L. Halcrow .....	Assistant Professor
Doojin Hong .....	Assistant Professor
Joel E. Iiams .....	Associate Professor
Michele A. Iiams .....	Associate Professor
Mohammad Khavanin .....	Associate Professor
Jerry M. Metzger .....	Professor
Richard P. Millspaugh .....	Professor and Chair
Michael C. Minnotte .....	Associate Professor
David P. Morstad .....	Senior Lecturer and Math Computer Lab Director
Lawrence J. Peterson .....	Associate Professor
Timothy M. Prescott .....	Lecturer
Mary E. Rerick .....	Senior Lecturer
Thomas L. Richards .....	Assistant Professor
Jessica R. Snyder .....	Senior Lecturer
Lona Spicer .....	Administrative Secretary
Shuzo Takahashi .....	Assistant Professor
Ryan J. Zerr .....	Assistant Professor



## Pedestrian Skyway Overpass

Here is a picture of the new indoor pedestrian walkway passing over Columbia Road. This photo was taken from the southeast corner of Columbia Road and Second Avenue North. At the left, you can see the entry to a pedestrian tunnel passing underneath Columbia Road.

## THANK YOU !!

The following persons are responsible for monetary gifts to the UND Alumni Association specifically designated for the improvement of the Department of Mathematics:

Dr. and Mrs. William Bickley  
Marlys and Rodney Kjellberg  
Jeremiah D. Bartz  
Dr. Ernest N. Gullerud

Drs. Sandra and Richard Paur  
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Allen K. Dominek  
Rodney B. McKinney

Barbara and Daniel Hinnenkamp  
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A. C. Olson  
Richard and Alta Starr

Patricia J. Lund  
John L. Clynch  
Jason L. Aakhus  
Paul V. Bruce

### **Ronald C. and Ann C. Bzoch Memorial Scholarship**

Maryanne and Russ Romero

### **Jay O. and Marie Bjerkaas Scholarship**

Mr. and Mrs. Forrest Bjerkaas

If you would like to make a monetary contribution to UND, to the UND Mathematics Department, or to one of our scholarships, please make checks payable to the "UND Alumni Association" or to the "UND Foundation."

*Your generosity is gratefully acknowledged and sincerely appreciated!*



Let us hear from you

Your teachers and friends are wondering what you are doing! Help us to satisfy their curiosity! (Photos are also welcome.)

NAME (Include previous if changed.): \_\_\_\_\_

CURRENT ADDRESS: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_

DEGREE AND YEAR RECEIVED: \_\_\_\_\_

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Use additional sheets if necessary. You can also send us news items and comments by e-mail! Just send a message to

[udmath@und.nodak.edu](mailto:udmath@und.nodak.edu)

Be sure to say that the information is for the Math Log!