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Moorhead State University, Mathematics Department

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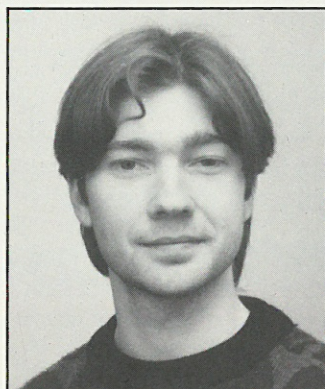
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Outstanding Senior Awards

The mathematics department this year chose to recognize three seniors for their outstanding achievement in the mathematics program here. The seniors so recognized are **Michael Dean**, **Emily Rudh**, and **Aimee Tyler**.



Michael Dean is the son of Robert and Janet Bork of Maple Grove. He came to Moorhead State from Osseo High School and is completing a double major in music (piano performance) and mathematics. Michael is planning to go to graduate school in music at the University of Oklahoma in Norman next year, in preparation for a career teaching advanced piano. He chose membership in the Mathematics Association of America.



Emily Rudh is the daughter of Richard and Janice Rudh of Rothsay, and came to Moorhead State from Rothsay High School. Originally an electrical engineering major, she switched to mathematics because she enjoyed mathematics much more. Emily is a mathematics education major who hopes to teach in Minnesota next year. She is considering graduate school as a possible later alternative. For her award, Emily chose to become a member of the National Council of Teachers of Mathematics.



Aimee Tyler is the daughter of Richard and Mary Tyler of Thief River Falls, and graduated from Lincoln High School in Thief River. In addition to her mathematics major, Aimee is completing a business minor, and is looking for a job in business after graduation. She chose to become a member of the Mathematical Association of America.

Review of Faculty Professional Activities

As usual, members of the Mathematics Department have been active in their professional capacities outside of the classroom. Attendance at various professional meetings is widespread and varied, ranging from meetings of the North Central Section of the M.A.A. to regional meetings of N.C.T.M. to such arcane meetings as those of the American Society of Hematology. The department is also well represented at meetings of various statistical organizations and those of the Women in Science.

Research has also been a prominent activity for several department members. Sayel Ali has published the paper "Interpolation of Entire Functions Associated with Some Freud Weights, II" in the *Journal of Approximation Theory*, with R. Al-Jarrah of Southwestern Oklahoma State University. They have published a second paper in *Pentagon* entitled "Generalized p-Series with applications."

Walter Sizer presented a paper entitled "Mathematics in the South Sea Islands" at a Midwest Math History Conference.

Jim Hatzenbuehler and Don Mattson have had three recent papers accepted for publications in various journals including the *Proceedings of The American Mathematical Society*. Mattson also presented a summary of their recent sabbatical work to a meeting of the Tri-College Mathematics Colloquium.

Professor Peiyi Zhao was also a co-presenter of a Tri-College Colloquium and Mahinda Karunaratne spoke at the April meeting.



Christine McLaren has produced a long list of papers in the last year devoted to the area of biostatistics. Her work ranges from the publication, "The Generalized Chi-squared Goodness-of-fit Test" which appeared in *The Journal of the Royal Statistical Society, Series D*, to the paper "Reinforcing Statistical Concepts through Collaborative Research Projects for

Undergraduates" which was presented to the Fourth International Conference on Teaching Statistics held in Marrakech, Morocco. McLaren has collaborated on papers with Ari Wijetunga in the *American Journal of Pathology* and with former department member Julie Legler. She has also involved several students in her research, some of them becoming co-authors of papers. These recently included Ed Kambour, James Jacklitch, and Amy Rath.

Professor McLaren is also the recipient of a major grant to participate in an effort to find a new treatment for malaria.

Wayne Chen had the paper "A proof of the generalized Picard's Theorem Using Matrices" published in the *Journal of Linear Algebra and its Applications*.

Jane Schobel led a workshop at the national NCTM meetings in Boston this April. Her workshop was entitled "Using Cooperative Learning in Middle School Mathematics."

Sabbatical Leaves

Often, when non-academic people are informed of a professor being on sabbatical leave, they are duly envious and view non-teaching as a vacation. However, they should be apprised of what actually happens while on sabbatical. True, it is an opportunity for respite from the rigors of the classroom but it also affords the possibility of uninterrupted work and study on projects of interest.

This year, Jim Drouilhet was on leave during fall quarter, wherein he undertook an intensive study of the difficult area of differential geometry. Former department chair Milt Legg is writing a textbook suitable for a liberal arts mathematics course, that is, one aimed at the general student and not a "techniques" course. Such a text is sorely needed if the current crop is any indication.

Christine McLaren is currently spending her sabbatical in Australia at The University of Queensland, Brisbane, where she is pursuing her research in the area of biostatistics. Her numerous papers and projects have been discussed in the article on faculty professional activities in this newsletter.

Does all of this sound like a vacation to you?

Bette Midgarden Appointed Vice-President for Academic Affairs

After a thorough search with candidates from throughout the United States, Professor Bette Midgarden of the Mathematics Department has been appointed Vice-President for Academic Affairs at Moorhead State. After the President of the university, the position of academic vice-president is probably the next most important administrative post at the university.

Professor Midgarden began her career in the Mathematics Department where she has had an important role in the preparation of students for actuarial careers. In fact, although for the last seven years she has served in the administration, she still teaches courses designed to prepare students for the actuarial examinations.

The department wishes Professor Midgarden congratulations and great success in her new and important position as academic vice-president.

Help: Proposed Industrial Mathematics Major

The Mathematics Department is actively pursuing the idea of an "industrial mathematics major." Such a major would be aimed at preparing students with undergraduate degrees directly for careers in industry. To that end the department is actively seeking input from individuals who actually work in the "real world" in some mathematics related capacity. Some questions which arise are: What courses should be included from those we now provide?; what new courses, if any, should be included?; how much computer science should be required?; what does "industry" want a graduate to know and be able to do?

If you work in industry and have any ideas on mathematical preparation for such positions, we would be delighted to receive your thoughts on the subject. For example, in your job capacity, is abstract algebra largely a waste but a good course in combinatorics would be handy? Let us know what you think.

Budget Problems at Moorhead State

Moorhead State continues in its second year of budget cuts, with a possibility of more next year. The financial problems stem from a dramatic decline in enrollments, from over 9,000 a few years ago to just over 7,000 this year. Because the university has fewer students, it therefore needs fewer faculty. As a result 42 faculty and 23 staff positions have been eliminated. Some of these positions will be eliminated this year and some next year. Starting the 1996-97 year the department will have 17 full time faculty, down from 24 in 1992-93. This reduction of staff will not affect the quality of our mathematics program. We will still have about the same number of students per class for our mathematics majors. The main change that this reduction in faculty will bring about is the number of students in our service courses for other departments. We will, however, most sorely miss our colleagues that are being laid off.

Math Majors

The number of mathematics majors at Moorhead State has been steadily declining. There are about 77 this year, down from 105 last year. In recent years the department has had as many as 150 majors. This decline pretty well follows a declining trend in the number of mathematics majors throughout the United States. The reason for this decline is not clear.

Mathematics is a very difficult subject to learn for most people. It requires many hours of study and an attention to detail. There are very few majors in mathematics. We are very proud of our alumni. Moorhead State's mathematics graduates are among the best in the country. Keep up the good work!

Semester Conversion/Merger

Moorhead State's conversion from quarters to semesters is now being completed. Most of the new semester courses have been approved by the Academic Policy Advisory Committee (APAC). The university is now addressing issues associated with the change, such as: "How will each department handle student needs to re-take a quarter course under the semester system?" and "How will the department handle series courses when a student has only completed one course in the series before the semester conversion takes place?", plus a number of other related concerns.

The Mathematics department's semester conversion has gone fairly smoothly. We have combined several courses, dropped a few and added some. Most of our courses will look very similar to the ones that we offered under the quarter system. As of this moment the semester curriculum for the Mathematics department looks pretty good, but we will need to make adjustments after we actually implement it Fall Semester 1995.

Next year will also bring the merger of the state university system, the community college system, and the technical colleges. The implications of this merger, at this point, do not seem clear, beyond the expectation that we will cooperate more with nearby community and technical colleges. An immediate difficulty seems to be that of financing the merger. If the State of Minnesota does not provide money to complete the process, then there may be financial difficulties for all parties involved in this endeavor.

MSU Hosts Summer Workshop

Moorhead State University will host a one week summer institute on the teaching of high school mathematics using graphing calculators. Instruction will be provided by personnel who trained under Demana and Waits of Ohio State University, directors of the national renowned Teachers Teaching with Technology (T3) program.

The institute was designed for teachers of advanced algebra, trigonometry, precalculus, math analysis and/or calculus. Thirty-two math educators, 13 from Minnesota, 14 from North Dakota and 5 from South Dakota, will participate in this summer's institute. Using TI82 or TI85 calculators, they will receive intensive training in the use of the graphing calculators to present mathematics in an exciting, exploratory, and investigative manner. Appropriate mathematical content will be discussed; new teaching and evaluations will also be presented.

A mini-grant from Texas Instruments, obtained by Professor Marvel Foremning, funded this institute.

Area Math Educators Meet

Members of the mathematics faculty at MSU have been involved with reestablishing an area teachers of mathematics organization for junior and senior high school and university instructors. Bonita Schmidt, MSU, co-chaired with Jane Reff of Fargo South High School a fall meeting, November 1, 1994, at Fargo South High, Fargo, ND. Nancy and Steve Durow, Fargo Public Schools, presented a program on the TI-82 graphing calculator.

This organization has developed a speakers bureau which includes both high school and university teachers. MSU faculty in the speakers bureau include Ronald Jeppson, Tim Peil, Harley Reed, Bonita Schmidt, Walter Sizer, Vernon Wolff, and Peiyi Zhao.

On May 4, 1995, the mathematics department of Moorhead State University hosted the Spring Teacher Appreciation Dinner for area mathematics educators. Featured speaker was James M. Foley, President of the Minnesota Council of Teachers of Mathematics (MCTM).

Mr. Foley, who graduated from the University of Minnesota, Duluth with a B.S. degree and Kansas State University with a M.S. degree, presently is teaching mathematics at Champlin Park High School, Champlin, MN.

Mr. Foley was the 1992 recipient of the Presidential Award for Excellence in Mathematics Teaching for Minnesota. His many professional activities include being a consultant/reviewer for Addison-Wesley, a committee member for the Minnesota Academic Excellence Foundation Distinguished Educator

Award and the University of Minnesota talented Youth Mathematics Program, and a contributor to Minnesota State Department position papers on middle school mathematics and learner outcomes for mathematics.

His various activities in NCTM regionally and nationally make him a frequently requested speaker for many workshops and conferences throughout the nation.

Student Notes

Three mathematics graduates this year are headed for graduate school next year: Jody Hillberry to Iowa State University in Ames to work on a degree in economics (he is a double major); Michael Dean to the University of Oklahoma to work on a degree in music; and Paul Rozman to Montana State University to study mathematics.

Four Moorhead State students, Jody Hillberry, Nathan Dodder, Nathan Nysether, and Bob Longfellow, took the Putnam examination in December. The Putnam is a competition designed to identify the top mathematical problem solvers among undergraduates in the U.S. and Canada, and the competition includes students from the best universities in North America. Hillberry placed in the top 50% of those taking the exam.

Moorhead State again had teams entered in the undergraduate mathematical modeling contest sponsored by the Consortium for Mathematics and Its Applications for the last two years. Participants this year were Paul Rozman, Bradley Rud and Chris Copeland.

Alumni Notes

Dean R. Harris, '71, recently completed 15 years service with Computer Sciences Corporation, where he works on software for a mainframe-based U.S. government agency budgeting system. He is also studying ways for converting the mainframe database to a client/server system.

Carol L. Cossette, '72, now serves as assistant principal for a pre-K through 5 school in Onslow County, N.C. She went to that job from a position in the N.C. State Department of Public Instruction.

Don Karlgaard, '72, is one a one-year assignment as Assessment Specialist for the Brainerd pilot project on Graduation Standards. He is taking a break from his normal occupation as high school mathematics instructor.

Denise (Pulkrabek) Oppegaard, '72, is in her 18th year of teaching mathematics at Sacred Heart High School, East Grand Forks, and loving it!

Patricia Mahan Botner, '73, and husband, Dan, live on Dan's family's farm in Garfield. They rent the farmland and store boats in the farm buildings, while Patricia works at the Alexandria Technical College and Dan does cabinet work. Patricia's present job is with admissions. She sends a special hello to Lori Miller.

Neil Widner, '73, wife Leslie, and their five children are very busy running the family farm. In 1994 they were Marshall County's farm family of the year. Congratulations!—ed.

Julie (Davies) Hansen, '75, with husband Jeff and her brother's family, owns and operates the Davies-Hansen Dairy Farm of approximately 1400 acres and 400 cattle. In addition, Julie likes being a substitute teacher at Aitkin High School. Julie and Jeff have one son, a three and one-half year old.

ViAnn Olson, '76, teaches mathematics at Rochester Community College. She just finished writing a textbook supplement in elementary and intermediate algebra for West Publishing.

John Bisek, '77, has been a software engineer for Unisys for 15 years. He, wife Mickie, and their three daughters live in St. Paul.

Julie Henry, '79, is a Proposal Developer for Hewlett-Packard, and with husband Scott owns two (soon to be three) hair salons. They live in Roseville with daughters Jessica (8) and Kate (5).

Delles Solie, '80, got a master's degree in mathematics education from Bemidji State in '91, and teaches and coaches at Owatonna High School.

Duane Van Den Broeke, '80, is a Senior Analyst in the Information Technology Division at 3M in St. Paul. He and wife Laurie were expecting their first child in April, '95.

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Dave Jacobson, '80, is completing his Ph.D. in Industrial Engineering and Operations Research at the U of Minnesota this spring. He continues as Staff Reliability Engineer/Statistical Scientist with IBM, and is also on the graduate faculty at St. Mary's University. In recent months he received two Author's Recognition Awards from IBM, and he is involved with the youth sports programs in Rochester.

Claudia (Brainerd) Wiebold, '81, works as senior systems analyst for Minnesota Mutual. She received the designation of Master Fellow in the Life Management Institute this past year. She lives in Shoreview with husband, Don, and two children, Nathan (age 9) and Carmen (age 6).

Lonnie Schultz, '82, completed her Ph.D. in biostatistics at the U of Michigan last December (CONGRATULATIONS!—ed.). She did this while working full-time as biostatistician at Henry Ford Health Systems. Lonnie and husband Richard McLain have a three year old daughter, Mary, and are expecting another child on July 4th.

Kirk Scott, '82, is in his third year in the computer information systems department at the College of St. Scholastica, Duluth.

Steve Dale, '83, is farming and working at CFSA, formerly ASCS. Wife Tracy is a nurse at Jamestown Hospital. They have three children, the oldest of whom is in kindergarten.

Kathy (Koss) Haukoos, '83, is still statistician/programmer for CUNA Mutual. She and husband Mark had a son, Garrett, last June. Mark started a new job as sales engineer for Madison Concrete Pipe (WI).

Ilo A. Myhra (formerly Lewis), '83, is a senior software engineer for Keane, Inc. (Rochester).

David H. Sederquist, '83, works in budgeting, planning, rate-determination, and regulatory relations for NSP in Fargo, while also working on an MBA at NDSU. He and wife Jane (Remark—also MSU) have three sons: Tom (6), Dan (4) and Ryan (4).

Paul Krzyzaniak, '84, still lives and works in Germany doing computer work for the U.S. military.

Scott LaChance, '84, lives in Bremerton, WA, with wife Jodi Boeddeker (also MSU) and three daughters aged 6, 3, and 2. After serving in the navy for five years and teaching high school mathematics for two years, Scott is now working for Traveling Software, Inc.

Theresa (Fedor) Resnick, '85, works as Assistant Actuary with Allstate Life, and recently completed another 25 credits toward Fellowship in the Society of Actuaries. Theresa, husband Mike, and son Peter (1 1/2) live in the Chicago suburbs in a recently acquired house.

Gail Kelm-Maynard, '85, got married last July to Greg Maynard. Greg does carpentry work and Gail is still teaching mathematics in the Bertha-Hewitt Schools.

Kathryn R. Noel (formerly Carlson), '86, got married in October to Tom Noel, getting a 7 year old son in the process. Kathryn continues to teach in the Harlem, MT, public schools and is Assistant Chief of the volunteer fire company. Tom is also a member of the fire department and drives a bus for the schools.

Stephanie (Davis) Cundiff, '87, is teaching in Colorado Springs and pursuing a Master's of Education. Stephanie writes that her mother is now studying CIS at Moorhead State!

Joel Langenfeld, '87, got a master's in mathematics from the U of Wisconsin-Milwaukee in '89, the same year he married MSU alum Karen Hostetler. Since then Joel had been doing computer programming, currently for Connect Computer. Joel and Karen live in Minneapolis and are expecting their first child in October.

Brian Ortner is pursuing a Master's of Theology degree, with hopes of going on for a Ph.D. He spent two months this summer doing religious work in Moscow (yes, Russia). He's supporting himself in seminary partly by working as systems analyst/programmer.

Donald L. Burnham, '88, teaches high school mathematics in West Fargo and is working on a fractals class for the high school level. Donald's wife teaches high school English; they have two sons studying engineering at NDSU and a son at Shanley High in Fargo.

Kara Gruenberg, '88, has been teaching mathematics at N.D. State College of Science in Wahpeton for the last three years. She is also taking classes in civil engineering and surveying there. She enjoys her work and was nominated for the Outstanding Educator Award there this year.

Paul A. Pries, '88, still works as an actuarial analyst in Madison, WI.

Marci Goldade, '89, hopes to finish her Ph.D. at Colorado State this year, which confronts her with a "pretty depressing search for a job" (the market for Ph.D. mathematicians is quite bleak at present; we wish you the best of luck—ed.). Marci and husband Tom Fischer had a baby girl, Annie Palisade Fischer, in February.

Shelly (Gregory) Melroe, '89, is in her fifth year at Shell Oil Company in Houston, doing statistical work. She got a Special Recognition Award from the company in 1994 for her involvement on a safety program. Husband Dana is completing a degree in Construction Science at Texas A&M University.

Farshid Ketabchi, '89, changed jobs recently to take a position as software developer for Salomon Brothers, a Wall Street investment company.

Tony Roeser, '89, wrote that he "just wanted to say hello to Jennifer Brekke." His return address read Farmers Insurance Group, Grand Forks, so we assume he has a job there!

Patricia Smidt, '89 is working at Norwest Bank in Thief River Falls and teaching part-time at Northwest Area Learning Center in Thief River.

Michelle (Coleman) Mahoney, '90, got an MS in applied statistics from NDSU last May. She's now a biostatistician for the Cancer Center at the Mayo Clinic in Rochester. She and husband Douglas, married five years now, have two children, Chelsey (4) and Jordan (1). Douglas is also a biostatistician at the Mayo Clinic.

Jeff Riewer, '90, coaches boy's basketball and teaches at Walker-Hackensack-Akeley High School (MN). In summers he is an instructor and property manager at a summer camp on Steamboat Lake. Fishing is a favorite pastime.

Charmin Coulombe, '91, is teaching trigonometry and studying architectural technology and design at Northwest Technical College in Thief River Falls.

Partha P. Dass, '91, has worked for the past year as statistical analyst at Chilton Research Services in Pennsylvania. He wonders if there are any others of you "on the east coast".

Sharon Hintgen, '91, continues her part-time teaching at Fergus Falls Community College while pursuing a master's in mathematics education at Bemidji State U in the summers. Her boys, 17 and 14, both enjoy mathematics.

Peter Shea, '91, continues work on a Ph.D. in mathematics at Colorado State, officiating basketball games in winter and coaching youth baseball in summer. He co-authored his first paper recently, to be published this year.

Daniel Carberry, '92, is completing a master's degree in mathematics this May at Iowa State U.

Deborah A. (Frank) Haglund, '93, married Dave Haglund in April, 1994. They live in Denver, where Debra works as accounting technician in the state Department of Transportation.

Amy Rath Johanson, '93, married MSU grad John Johanson in June, 1993. They live in Ames, IA, where Amy is a teaching assistant in statistics while she works towards her master's degree at Iowa State U.

Tracey (Ose) Lyons, '93, is a tutor and substitute teacher in the Lisbon, ND, schools.

Carol D.L. Smith, '93, is training as a computer technical representative after failing qualifying exams in the applied mathematics program at the U of Arizona (we feel bad for you—ed.).

Dennis Fischer, '94, got married last June, and they are expecting a baby in May. Dennis teaches mathematics at Wheaton (MN) High School.

Corey L. Johnston, '94, just joined the staff of Physicians Mutual Insurance Company in Omaha.

Vanessa Jones, '94, is a teaching assistant at the U of Virginia while studying for a master's in applied mathematics.

Ted Kern, '94, teaches seventh and eighth grade mathematics and ocputer animation at Russell-Tyler-Ruthon (MN) High School, where he also coaches. Ted and Tanya Tuorila will be getting married in June.

Brock Stenberg, '94, is teaching mathematics and coaching basketball in Ortonville, MN.

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