



UNL MATH DAY 1990

ON November 15 the Department of Mathematics and Statistics at UNL hosted 562 students from 68 Nebraska high schools at its first UNL Math Day. The goals were to promote mathematics and the mathematical sciences as exciting majors and professions, to promote UNL as a good university at which to pursue such a major, and to have fun. By all accounts, it was a resounding success.

The day focused on three distinct competitions: one for individuals and two for teams — with the team competitions divided into classes A, B, and C, according to the size of the school. The individual competition consisted of a preliminary multiple choice, 25 question, one hour exam called PROBE I. The top fifty scorers (actually 53 this year, due to ties) then competed in a final essay type, eight question, one hour exam called PROBE II. The top ten finishers were awarded 4-year scholarships to UNL: \$8000 for 1st, \$4000 for 2nd-5th, and \$2000 for 6th-10th, a total of \$34,000. PROBE I also gave us the PROBE Team Competition which was judged by the sum of the top 5, 4, or 3 scores, depending on class, on the PROBE I exam from each school. Plaques

were awarded to the 1st and 2nd place teams in each class. There was also a Bowl tournament, which was a double elimination contest which consisted of two 3-member teams in a fast paced, head-to-head duel, with trophies going to the 1st and 2nd place teams in each of the classes.

Many of you may find a familiar name in the results. Here are the Class A, B, and C top five PROBE teams: (A) Lincoln East, Creighton Prep, Omaha North, Lincoln High, Omaha Westside; (B) Grand Island Central Catholic, Lincoln Pius X, Plattsmouth, Syracuse-Dunbar-Avoca, Norris; and (C) Friend, Bellevue Christian, Mead, Nemaha Valley, Beaver City. The top two Bowl teams for each class were: (A) Omaha North, Lincoln East; (B) Seward, Syracuse-Dunbar-Avoca; and (C) Friend, Spalding. The ten PROBE II scholarship winners were: Eric Smith, Daniel Hanish, Melissa Chen, Joseph Kable, Jonathan Grohs, Eric Hu, Kristin Warner, Yuki Young, David Wiegand (son of our own Math-Stat Profs. Roger and Sylvia Wiegand), Krista Vance.

There are some interesting footnotes. Among the PROBE II winners, three are seniors, one is a freshman, one a sopho-

more, and the rest are juniors, so many of the best will be returning. Schools that traveled the farthest were Sidney St. Patrick from Sidney and Wheatland from Madrid. In all, ten schools traveled more than 200 miles. Approximately 1500 people hours were involved in the planning and administration of Math Day with about 200 of these on the day of Math Day it-

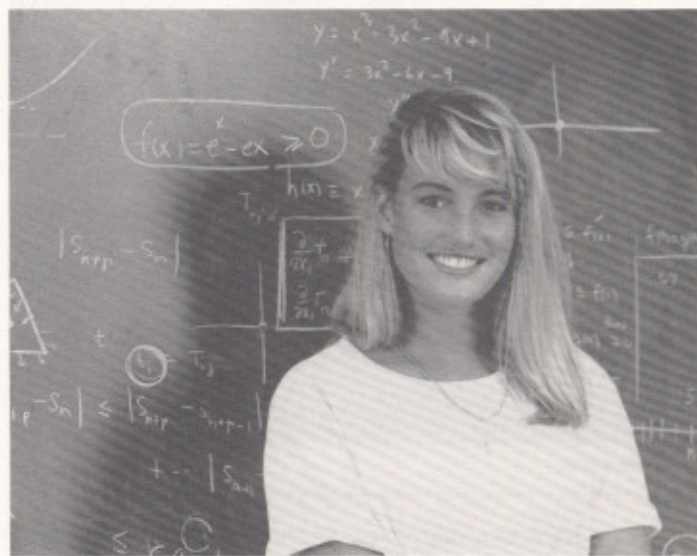
self.

And it will all be repeated this year: Math Day will be an annual event. Math Day 1991 will be on Thursday, November 14, 1991, with opening ceremonies beginning at 8:00 in Kimball Hall. Our goal is 700 plus students from over 90 schools with 64 schools competing in the Bowl tournament.

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UNDERGRADUATES IN THE NEWS

SARAH CAVEL, A JUNIOR MATH MAJOR, WON A TWO-YEAR Barry Goldwater Foundation award. Such awards carry a yearly stipend of \$7000 and are open to junior and senior mathematics and natural science majors. One award was made in each state. For the competition Sarah wrote her required 500-word



Sarah Cavel

essay on "Math Anxiety". She said she had tutored a lot of students in elementary, precalculus mathematics, and had a lot of first-hand experience with students who were nervous about their ability to do simple mathematical calculations. Paul Poulosky, a senior mathematics and physics major, has just accepted a Graduate Fellowship at the University of Michigan at Ann Arbor. Paul is currently interested in algebra, and Michigan is one of the top graduate schools in the country. The fellowship that Paul will receive is funded by the U.S. Department of Education and is a part of the program "Graduate Fellowships in Areas of National Need". It carries a \$10,000 stipend plus a tuition waiver.



Paul Poulosky



Chris Heckman

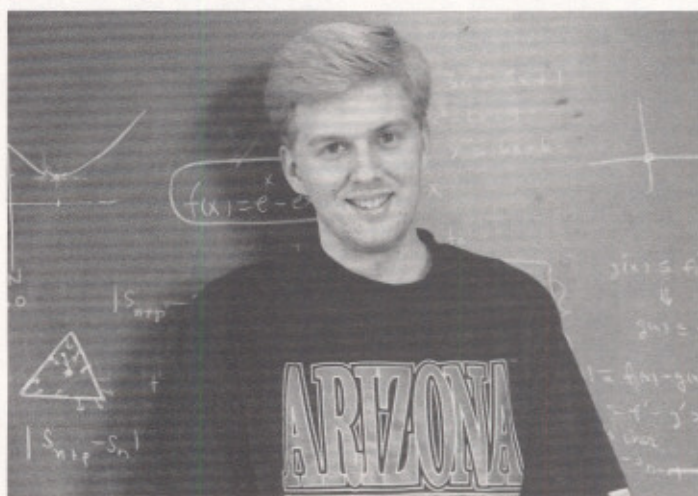
Chris Heckman, one of our Eastman Scholars, participated in the NSF sponsored Research Experiences for Undergraduates Program last summer at the College of William and Mary in Williamsburg, Virginia. The topic was linear algebra and general-

ized numerical ranges. In recognition of his being the outstanding student at his REU site, Chris was chosen to present a paper at the annual joint meeting of the American Mathematical Society-Mathematical Association of America. Chris, who has been at UNL for two years, is from Lincoln East High School. He was also a member of our Putnam Exam Team.

Another student who will participate for ten weeks this coming summer in the Research Experiences for Undergraduates is Michael Lewis, a junior mathematics and physics major. Michael will visit the University of Oregon at Eugene for ten weeks to study chemical physics. Michael is also from Lincoln, and he graduated from Southeast High School.

We are also pleased with the recent large number of math majors graduating with honors. In May, 1991, this includes: Mark Mills (Highest Distinction); Kelli-Anne Roeber, Kevin Clinefelter and Jennifer Raschko (High Distinction); and Darin Hoffman and Todd Yilk (Distinction). In 1990, spring, summer and winter, we had: Kurt Herzinger, Lori Higby, Donald Jappert and Kevin Larsen (High Distinction); and Natalie Blobaum, Shahid Malik, Brenda Schlender, William Sorenson and Stephanie Fitchett (Distinction).

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Mike Lewis

UNDERGRADUATE MATHEMATICS SCHOLARSHIPS

FOR years now the funds to support our scholarships for undergraduates have come from the Hubert Schneider and Joel Stebbins memorial funds, the Irwin Dubinsky fund, and the US Harkson Corporation fund. The total of about \$4,000 annually was awarded to 6-10 students, based partly on academics and partly on need. We felt, and were, quite fortunate to have these funds. That hasn't changed, but the Dean H. and Floreen G. Eastman Memorial Scholarship Fund, a new endowed fund, now allows us to help many more

students.

Last year we awarded a total of \$40,165 to 35 undergraduate students and this year we will award \$88,000, thanks to the Dean H. and Floreen G. Eastman Memorial Scholarship Fund. This fund will provide us with up to \$83,000 per year for undergraduate mathematics majors who have graduated from a Nebraska high school. This must rank us among the top for scholarships available for undergraduates in mathematics departments of state universities. It has certainly given mathematics at UNL a shot in the arm.

Each year we will offer \$12,000 four-year Eastman Scholarships to five of our freshmen majors, several \$1000 one-year Eastman awards to worthy freshmen majors and a number of one-year Eastman awards of up to \$3000 to upper class ma-

jors, based on scholarship and need. The other funds will support awards of \$300 to \$1000. We currently have 10 new freshmen, 11 sophomores, 6 juniors, and 8 seniors receiving scholarships. Next year we'll have close to 50!

We also provide other support for our majors. We have 15 positions as Math Counselors, almost all filled by math majors. Undergraduate majors are also employed as paper graders (6), NeXT Computer Lab attendants (4), honors course assistants (2), workstudy (1), and TA's (2 last fall). This gives us a chance to work more closely with some of our best majors and it gives them an opportunity to sharpen some of their mathematical and teaching skills. Of course they are wonderful role models for the rest of our students.

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COMPUTER NEWS AT MATH-STAT

MATH-STAT computer usage continued to expand in 1990-91. The statistics group now has a Sun workstation with supporting software. A second Macintosh computer joined the Mac II in the department's computer lab, and both are now tied into a new postscript based laser printer. We use this new equipment both for our classes and for our research, to prepare technical documents and to communicate with our colleagues all over the world using electronic mail.

Several recent acquisitions significantly enhanced what we can now do in our classes. The College of Arts and Sciences awarded seven Macintosh computers to Math-Stat for various teaching projects. Four of

these computers now form the nucleus of a statistics lab for our undergraduate stat students. Professors Kun-Liang Lu and Lal Saxena are developing software to use in the lab in conjunction with pilot courses that will run next fall.

We also now have a permanent home for our lab of NeXT computers. In addition to providing funds to refurbish this room with climate control and security systems, the administration made available the remaining matching funds committed for lab equipment, so the lab now has 12 NeXT workstations and a laser printer. The lab has already been used by Professor Steve Dunbar for Math 221 (differential equations) and by Professors Tom Shores



Three of our Eastman Scholarship awardees: Edward Wiley, Chad McQuinn, and Cynthia Rose

and Chris Tiaht for Math 314 (linear algebra). Usage is heavy, with over 100 accounts in the lab. With only 12 machines, a class of any size commonly has students huddled two or three deep at each machine, which makes it difficult to run hands-on class demos. Our goal is to fill Bessey 105 with 20 workstations.

As more of us in Math-Stat become accustomed to hav-

ing the lab, we think that some innovative teaching ideas will evolve. The next time you're on campus, be sure to stop by and visit the lab. (Senator Bob Kerrey did so as host to some visiting National Science Foundation officials, and he was quite impressed with it.) The lab is a lovely facility and it will give you a glimpse of the future of mathematics education.

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The NeXT lab in Bessey 105

PUTNAM EXAM

PROBLEM: FIND ALL REAL-VALUED CONTINUOUSLY differentiable functions f on the real line such that for all x , $(f(x))^2 = \int_0^x ((f(t))^2 + (f'(t))^2) dt + 1990$.

Or: Consider a paper punch that can be centered at any point of the plane and that, when operated, removes from the plane precisely those points whose distance from the center is irrational. How many punches are needed to remove every point?

The preceding were just two of the twelve challenging problems attempted by the twenty-two UNL students who participated in the 51st Annual William Lowell Putnam Mathematical Competition held last December.

The Putnam exam is a nationwide undergraduate competition in mathematics which consists of an exam administered in two parts. Each part is a six question three hour long exam. The six questions, which the participants must work on independently, are very challenging questions from a variety of mathematical areas. There is also a team competition. The team members are selected before the exam; the team score is the sum of the scores of the three team members.



UNL's top two Putnam placers Paul Poulosky and Thian-Huat Ong with Putnam coaches Chris Tiahrt (far left) and Earl Kramer (3rd from left)

Among UNL participants, the top score belonged to Thian-Huat Ong, and the second highest to Paul Poulosky. They will receive \$75 and \$50 prizes sponsored by the Math department. The UNL team consisted of Chris Heckman, Kevin Wright, and Paul Poulosky. It finished 56th out of 380 participating institutions. Other UNL participants were Michael Lewis, Bob Moyer, Jennifer Raschko, Alan Hartford, Christy Brown, Conrad Engel, Mark Neeley, Chad McQuinn, Jeff McKaggart, Chris Rokusek, Phillip Hupf, Dan Hagerman, Jeff Kennedy, Jason Samson, Tan Joo Heng, Michael Nielsen, Kevin Haake, and Kian-Seng Lim. The local team was organized and coached by UNL Math Department professors Earl Kramer and Chris Tiahrt.

In addition to the actual competition, many of the participants also attended a session devoted to developing techniques useful on the exam and studying questions from previous exams.

By the way, if you're still puzzled by the above problems, here are possible solutions:

Solution Problem 1: First, suppose that $(f(x))^2$ equals the expression $\int_0^x ((f(t))^2 + (f'(t))^2) dt + 1990$. Differentiating both sides gives: $2f(x)f'(x) = (f(x))^2 + (f'(x))^2$ which can be simplified to $(f(x) - f'(x))^2 = 0$. Thus we have $df/dx = f(x)$. A general solution to this differential equation is given by $f(x) = Ce^x$ where C is an arbitrary constant. To determine C , replace $f(x)$ by Ce^x in the original formula, obtaining $(Ce^x)^2 = \int_0^x ((Ce^t)^2 + (Ce^t)^2) dt + 1990$ or $C^2e^{2x} = C^2e^{2t}|_0^x + 1990$. This gives $C^2e^{2x} = C^2e^{2x} - C^2e^0 + 1990$ and hence $C = \pm\sqrt{1990}$. The answer is thus $f(x) = \pm\sqrt{1990}e^x$.

Solution Problem 2: First observe that two punches will not suffice: simply construct intersecting circles of rational radius, each centered about one of the two points. Any intersection point of the circles will not be removed as it is not an irrational distance from either point. Second, observe that the three punches centered at the points $(0, 0)$, $(1, 0)$, and $(\pi, 0)$ will remove all points. To see this, we need to show that an arbitrary point (x, y) is an irrational distance from at least one of the three punch points. We proceed by contradiction. Let $d(\mathbf{p}_1, \mathbf{p}_2)$ denote the distance between points \mathbf{p}_1 and \mathbf{p}_2 . Suppose $d((x, y), (0, 0)) = \sqrt{x^2 + y^2} = r_1$, $d((x, y), (1, 0)) = \sqrt{(x-1)^2 + y^2} = r_2$, and $d((x, y), (\pi, 0)) = \sqrt{(x-\pi)^2 + y^2} = r_3$ where r_1, r_2 , and r_3 are rational numbers. Then $x^2 + y^2 = r_1^2$, $x^2 - 2x + 1 + y^2 = r_2^2$, and $x^2 - 2\pi x + \pi^2 + y^2 = r_3^2$. Subtracting the first equation from the second and third gives: $-2x + 1 = r_2^2 - r_1^2$ and $-2\pi x + \pi^2 = r_3^2 - r_1^2$. Now the only values of x satisfying the first of these equations are clearly rational, while the only values of x satisfying the second are transcendental. Thus no choice of x can yield rational distances from all three punch points.

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TEACHING AWARDS

AT this spring's University Honors Convocation Professors Steven Dunbar and David Logan of our department were honored with College of Arts and Sciences Distinguished Teaching Awards. They were each presented with a certificate, a medal and a \$1000 check, the latter funded by the Nebraska Unicameral. A total of eleven out of our twenty-two tenured faculty members have now won

University teaching awards; this is a phenomenal record and it clearly shows the department's commitment to good teaching.

Both honorees work in applied mathematics. Steve, besides being an outstanding classroom teacher, was cited for his innovations in bringing computers into the classroom and getting students involved in numerical computation in their normal coursework. Steve has recently taught both

Honors Calculus and Honors Differential Equations. He has been at UNL since 1984, coming from a post-doc at Utah. Steve, a '74 alumnus of UNL, earned his Ph.D. at Minnesota in 1981.

David received his Ph.D. from Ohio State in 1970. After post-docs at the University of Dayton and the University of Arizona, as well as a faculty position at Kansas State, David came to UNL in 1981. He served as departmental Chair for five years, and now he is active in an advising role as Graduate Committee Chair. He has taught numerous graduate courses and has the reputation of being a demanding, yet fair, instructor who gets the most out of his students.

We are also proud of our 17 Math-Stat faculty members and teaching assistants who were honored by the UNL Parents Association and the Teaching

Council for "having made a significant difference" in the life of a student here at UNL. Those receiving this year's *Recognition Award for Contributions to Students* are: R. Rao Chivukula, Steve Cohn, Steven Dunbar, Howard Hansen, Lori Higby, Gerald Johnson, Margaret Kaiser-Woodward, Chair Jim Lewis, David Logan, Scott Mudra, Allan Peterson, Erfan Pirbhai, Richard Rebarber, Jeff Rushall, David Skoug, Tony Verbsky, and Gordon Woodward.

John Schneider, another awardee from Math-Stat, received honorable mention for the College of Arts and Sciences Outstanding Graduate Teaching Assistant Award. John was one of three graduate students presented at the April 29, 1991 College of Arts and Sciences faculty meeting with a certificate of award for his teaching.

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for 1990-1991 were: Christy Brown, President; Duane Bernt, Vice President; Sarah Cavel, Treasurer; and Greg Boeschen,

secretary. This year's faculty advisors were Sylvia Wiegand and Chris Tiahrt.

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Distinguished Teaching Awardees Logan and Dunbar

MATH-STAT B-BALL TEAM FIELDLED

THE Math-Stat departmental basketball team, the Eulers, again participated in intramural competition this year. Although most participants are better at graphing points than at scoring them, the season was a success, in that everyone had fun.

This season, the team was organized and coached by grad-

uate student Bob Ruyle. Other participants were faculty Tom Marley, Chris Tiahrt, Visiting Prof. Wlodek Domanski, and students Curtis Case, Kevin Haggood, Robert Jajcay, Jae-Hak Lim, Erfan Pirbhai, Jose Reyes, Tony Verbsky, Alan Hartford, and Zoren Kilibarda.

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PI MU EPSILON

PROMOTING scholarship, and scholarship in mathematics in particular, is a major emphasis of Pi Mu Epsilon, the mathematics honorary. Typical activities in-

volve sponsoring scholarships and awards, organizing speakers, and hosting a spring picnic. This year, Pi Mu Epsilon members also assisted with Math Day activities. The officers

FACULTY ACTIVITIES AND AWARDS

SYLVIA Wiegand received a Career Advancement Award from the National Science Foundation (NSF) for her project *Decompositions of Cohen-Macaulay Modules*. It provides travel funds and salary support for a reduced teaching load during the spring semester of 1991. She also joined the editorial board of *Communications in Algebra* in January 1990 and, more recently, in March 1991, she became an editor of the *Rocky Mountain Journal of Mathematics*, the official journal of the Rocky Mountain consortium, which includes the University of Nebraska. As editor her duties include receiving manuscripts for consideration, which she either referees herself or for which she finds another referee. She then

notifies the author whether or not the paper will be accepted for publication in the journal.

From February 4 to 8, 1991, Professor Wiegand assisted NSF in selecting NSF Graduate Fellows. This is her fifth year of travelling to Washington D.C. to help in the selection process and her second year as the Chair of the Mathematics Graduate Fellowships Panel. Together with the other eight panelists in a small room in the Green Building (home of the National Research Council) in Georgetown, she assigned ratings to the applicants. She was very impressed by the large number of wonderful applicants; it was extremely difficult to select the 35 or so winners! One thing which is not well-known is that the number

of fellowships is directly proportional to the number of applicants; if more students applied for NSF Fellowships in Mathematics, more would be offered.

Professors Jerry Johnson and Sylvia Wiegand attended the International Congress of Mathematicians in Kyoto, Japan in August of 1990, as well as participating in satellite conferences in Nagoya on Commutative Algebra and Functional Analysis. Professor Wiegand presented a paper at the commutative algebra conference, held in honor of well-known algebraist Hideyuki Matsumura's 70th birthday. The International Congress itself was also extremely valuable and impressive. There were fifteen hour-long plenary lectures of an expository nature, showing the major directions of mathematics today, in addition to about ten sectional lectures in each major area of mathematics, given by world leaders in each field. All of this was in addition to the many wonderful sightseeing opportunities available around Kyoto.

John Meakin obtained a faculty development leave for the 1989-1990 year to work with colleagues in Berkeley, the Soviet Union, France and Australia. He spent much of the summer of 1989 at the Mathematical Sciences Research Institute in Berkeley, California, working in collaboration with Stuart Margolis (also from UNL and at MSRI that summer) and John Rhodes (of the University of California). In the fall of 1989, he visited the Soviet Union and presented a paper at the Mal'cev algebra conference in Novosibirsk. He spent the remainder of the Fall semester in Paris, France, on a research appointment at the University of Paris VI. During the Spring

semester, 1990, he was in Australia at Monash University.

On returning to Lincoln in August, 1990, John described his year as stimulating, fruitful and enriching. "I learned lots of mathematics, especially many techniques and ideas in combinatorial group theory, made many new mathematical contacts, managed to write research papers with colleagues in the U.S., France and the Soviet Union and presented a large number of seminars and invited papers at conferences in many places. It was a very fruitful leave and I expect to be working for several years on research projects that were started during this time and to be working with graduate students on many of the ideas that I learned during this leave."

Prof. Mel Thornton took a Faculty Development Leave this Spring. Professors Richard Rebarber and Steven Dunbar will have leaves next year. Earl Kramer, now nearing the end of a two-year National Security Agency (NSA) grant with Spyros Magliveras of Computer Science, has been notified that a renewal, for two more years, has been approved by NSA. Moreover, the grant funds will be matched by the UNL Center for Communications and Information Science. The grant will support Professor Kramer's work in finite geometries and block designs and Professor Magliveras's work on encryption schemes using properties of finite groups, together with their joint work in developing large knapsack algorithms.

Other good news is that Professor David Jaffe has been notified that his grant proposal to the National Science Foundation, for work in the field of Algebraic Geometry, will be recommended for approval.

Similarly, a joint proposal submitted by the Algebra group (headed by Professor Roger Wiegand, and including Profs. Sylvia Wiegand, Tom Marley

and Brian Harbourne) will be recommended for funding by NSF.

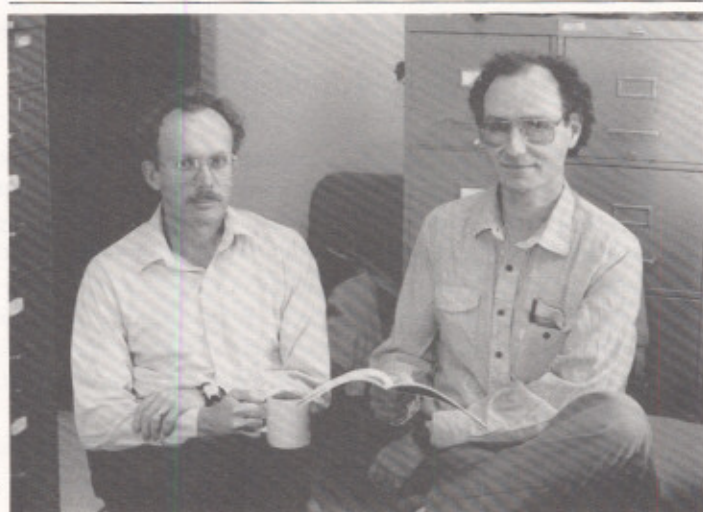
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NEW INTERNATIONAL JOURNAL AT UNL

THE first half of 1991 will see the publication of the first issue of a new mathematics journal, *International Journal of Algebra and Computation*. The new journal has been started by John Rhodes (at the University of California, Berkeley), John Meakin (of our department) and Stuart Margolis (Computer Science Department, UNL), largely in response to the current explosion of knowledge and research at the interface between modern algebra and theoretical com-

puter science.

The journal is being published by World Scientific Publishing Company, an international publishing house with headquarters in Singapore. The journal will appear quarterly, starting May, 1991. The journal will accept original research results of only the very highest quality in fields of interest to members of the editorial board, or related fields, with particular emphasis on papers in certain areas of algebra and theoretical computer science.



Editors John Meakin and Stuart Margolis

There is a large international editorial board consisting of around 30 very prominent mathematicians and computer scientists from the U.S., the Soviet Union, Canada, Australia, France, Britain, Brazil,

Czechoslovakia, Hungary, Italy and Switzerland, representing a wide area of research interests within algebra and theoretical computer science. There is particular emphasis on algorithmic problems in areas such

as combinatorial group theory, semigroup theory, automata theory, combinatorics, computational complexity, formal language theory, Boolean circuits, word problems, mathematical computation, and others. As Managing Editors, John Meakin and Stuart Margolis share responsibility with Editor in Chief John Rhodes for overseeing the operation of the journal, establishing policy, specifying the academic standards to be maintained in the process of accepting or rejecting papers for publication in the journal, forwarding papers to the publisher and in general maintaining quality control in all aspects of the publication of the journal.

Preliminary indications are that the *International Jour-*

nal of Algebra and Computation will rapidly establish itself as the leading international research outlet in areas of interest to members of the editorial board. The first issue contains several outstanding papers that solve major research problems of vast importance in the literature in these fields, and a large number of very strong papers are currently under consideration for publication in subsequent issues. During the initial year of operation, the journal has been supported by World Scientific Publishing Company, the UNL College of Arts and Sciences and UNL's Center for Communication and Information Sciences.

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has been an active participant in our semigroups and combinatorial group theory seminars during the year. There is a possibility that he may extend his postdoctoral fellowship and stay at UNL for a second year.

Another visitor this academic year is Professor Wlodek Domanski. Domanski earned his Ph.D. in applied mathematics from the Polish Academy of Science in Warsaw in 1987. In 1989-90 he was a Fulbright Postdoctoral Fellow at Princeton University working on the stability of nonlinear wave pat-

terns in elasticity theory. His work is closely related to that of Professors Steve Cohn and Mohammed Rammaha of our own faculty, and Wlodek gave several seminars during his year here at UNL, as well as teaching courses in partial differential equations at both the undergraduate and graduate level. His plans for next year are still uncertain, but it is likely that he will return to Princeton for a short visit before returning to Poland where he has a permanent position.



Visitor Dave Cowan

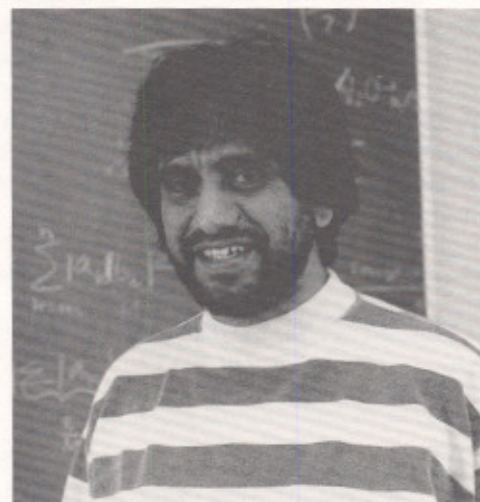


Visitor Wlodek Domanski

VISITORS

DURING the 1990-1991 year we were fortunate to have Dr. Dave Cowan as a post-doctoral fellow in our department. Dr. Cowan obtained his Ph.D. degree from Simon Fraser University in Canada in 1989 and won a prestigious Canadian gov-

ernment Natural Sciences and Engineering Research Council post-doctoral fellowship for the 1990-1991 year. Dr. Cowan chose to come to UNL for the year to work with John Meakin and Stuart Margolis and their students. He works in the theory of varieties of semigroups and



Visitor Mostafa Mashayekfi

Also visiting this academic year is statistics Prof. Mostafa Mashayekhi, a Michigan State

University Ph.D.

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ONCE AND FUTURE PH.D.'S

LAST year we had four students finish doctoral degrees in either mathematics or statistics. They were: Ed Woerner, now at the University of South Dakota in Vermillion, South Dakota; Tim Peil, now at Moorhead State College in Moorhead, Minnesota; Yuanzhang Li, now with Roth Associates in Rockville, Maryland; and Jia Bao-Ping, now at the University of Alaska in Anchorage, Alaska.

This year we should have three students finishing doctorates. Linda Fosnaugh is finishing up under the supervision of Earl Kramer. The title of her dissertation is "Tilings with the Neighborhood Property and K-block Tilings". She has accepted a position at Emporia State University in Emporia, Kansas. She plans to submit two papers for publication from material in her dissertation.

Qiu-rong Wu is also finishing his Ph.D. under the direction of Earl Kramer. The title of his dissertation is, "On Properties and Constructions of t -Designs, λ -Designs, and Perpendicular Arrays". He has already had three papers from his

dissertation accepted for publication: "Results in λ -designs", *Ars Comb.* 28 (1989), 231-241; "A note on extension of t -designs", *Australasian Journal of Combinatorics*; and "Some perpendicular arrays for arbitrarily large t ", *Discrete Mathematics*, this last being joint with Professors Kramer, S. S. Magliveras and Tran van Trung.

Steve Haataja expects to obtain his Ph.D. degree in August, 1991. The title of his dissertation is "Amalgamation and word problems for inverse semigroups", written under the direction of John Meakin. The thesis is concerned with the application of modern geometric and topological techniques from combinatorial group theory such as Bass-Serre theory and techniques from the theory of hyperbolic and automatic groups to studying the structure of amalgams and the word problem for various classes of inverse semigroups. Steve has accepted a tenure-track position at Augustana College in Sioux Falls, South Dakota starting the fall semester of 1991.

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ALUMNUS WINS NATIONAL CONTEST

DAVID COOKE, who left UNL in 1983 with a bachelors degree in mathematics and physics, won a national contest this year spon-

sored by MacWorld Magazine for the best new computer game. His game, called "Game Hall of Fame", is a Dungeons and Dragons type fantasy game and is

now marketed by Avalon Hill, the well-known game publishing company.

After leaving UNL, David went to the University of Minnesota where he received his Ph.D. in mathematical physics in 1989, working under Peter Olver. David is currently a Pro-

fessor of Mathematics at Hastings College in Nebraska where he has been teaching and doing research; two of his recent papers have been accepted by the *Journal of Mathematical Physics*.

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NEW DIVISION OF STATISTICS

IN April 1990, the Division of Statistics was created within the Department of Mathematics and Statistics, with Professor Lal Saxena as Director. The other members of the Division are Professors Dong-Ho Park (on leave), Partha Lahiri (on leave), Marek Slaby, Kun-Liang Lu and Jian-Jian Ren. Professor Park is visiting the Department of Mathematics at Pohang Institute of Science and Technology in South Korea on a faculty development leave and Professor Lahiri is spending this academic year at Washington D. C. as a Senior Research Fellow at the U.S. Bureau of Labor Statistics and the Bureau of the Census, sponsored by the National Science Foundation and the American Statistical Association.

This year we have had large increases in enrollments in all statistics courses, partly due to increasing enrollment

in Actuarial Science programs and the phenomenal increase in the number of statistics graduate students (at last count 20). There currently are at least six students in the early stages of their Ph.D. program in statistics. Professor David Marx, Head of the Department of Biometry, very graciously volunteered to help us with the teaching load by teaching for us a 400-level statistics course during the Fall semester.

This year the Division received a grant of four Macintosh computers from the Dean of the College of Arts and Sciences for improving the teaching of undergraduate courses in statistics. We hope to start using these computers in an experimental section of Stat 380H. All applied statistics courses at the 400-800 level have already been using computers since last year.

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NEW FACULTY AND PROMOTIONS

THIS is Jian-Jian Ren's first year here at UNL. She received her undergraduate degree from Peking University in Beijing, China, in 1982, her masters degree in 1987 from the University of Montana, and her Ph. D. in

statistics from the University of North Carolina at Chapel Hill in 1990; she is now Assistant Professor of Mathematics and Statistics here at UNL. Her main research interest is in statistical inference.

Prof. Kun-Liang Lu, a

visitor at Math-Stat last year, has also been hired as Assistant Professor of Mathematics and Statistics this year. Kun-Liang received his undergraduate degree at Nankai University in China in 1965. In 1981 he earned his masters degree from the China University of Sciences and Technology. In 1987 he received his doctoral degree in statistics from Purdue University. His main research interests are in decision theory and Bayesian analysis.

We are also pleased to announce that Dr. Mohammad Rammaha has been promoted to Associate Professor, with

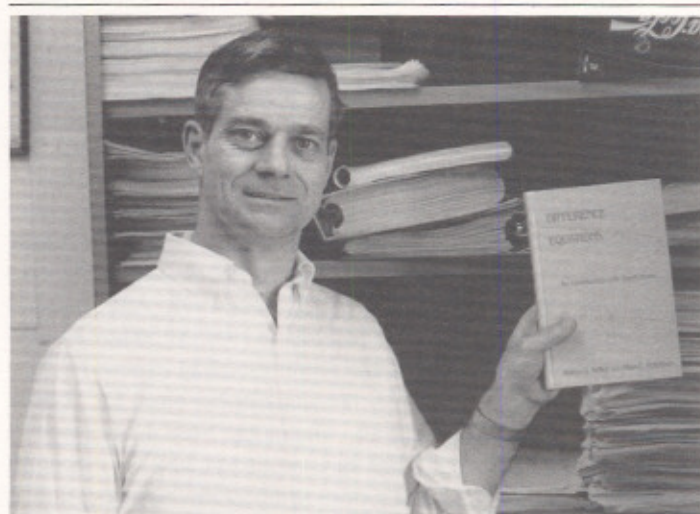
tenure. Mohammad received his masters degree in mathematics from the University of Dundee in Scotland in 1980 and his doctoral degree in mathematics from Indiana University in 1985. He has been at UNL since that time. His main areas of interest are partial differential equations, applied mathematics and analysis. Last year we told you about his grant from the Office of Naval Research. He is the author of several research papers and has been the recipient of the Teaching Recognition Award given by the UNL Parents Association.

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ical phenomena. The book is being used at the University of Missouri-Rolla by Leon Hall, formerly of UNL, and at

Auburn University by former UNL graduate student Johnny Hendersen.

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Prof. Peterson with new book.



New faculty members Jian-jian Ren (left) and Kun-Liang Lu

PETERSON'S NEW BOOK

THERE has been a lot of recent research interest in Difference Equations. This led our Professor Allan Peterson to coauthor, with Professor Walter Kelley from the University of Oklahoma, the textbook *Difference Equations: An Introduction with Applications*. Professor Peterson says he was really surprised how good he felt about

writing this book. He especially enjoyed working with Walter Kelley and feels he has made a very good friend. The book uses techniques of elementary analysis and linear algebra to investigate solutions of difference equations. The text includes sections on stability theory and on chaotic behavior with applications related to discrete modeling of economic and biolog-

LIFE ITSELF IS SLOW COMBUSTION

IN THIS YEAR'S ISSUE OF THE MATH-STAT NEWS WE WISH TO feature a research area where the department's faculty is active and has gained some reputation in the field. In upcoming issues we shall showcase other research groups; this time we'll showcase applied mathematics.

Applied mathematics is an extremely broad area and encompasses nearly every discipline where mathematical ideas are used to investigate physical phenomena. As such, applied mathematicians are often required to be jacks-of-all-trades and have some understanding of several physical areas of application. One area where some of the faculty in our department are concentrating their efforts is that of detonation and combustion theory.

Nearly everyone has a basic notion of what an explosion is, or what goes on in a piston engine. Detonation processes occur in obvious military applications, in explosions of stars, and in mining applications. Combustion occurs in rocket and automobile engines, the burning of solid wastes, and in many other interesting technological processes. One author, the famous Russian Academician Y. B. Zeldovich, in an effort to convince the reader of his book of the importance of combustion, stated that "life itself is slow combustion". There is underlying truth to this statement—any process involving a chemical reaction can to some degree be considered "combustion".

Combustion is the marriage of fluid mechanics and chemical kinetics, or chemical thermodynamics, and the mathematics, that of nonlinear partial differential equations, can be exceedingly complicated. The goal of the mathematical research is to develop math-

ematical models (simple equations) that describe observed phenomena, and invent new techniques that help solve these governing equations. As an example, a researcher may ask what happens to a chemical equilibrium state when a thermal wave passes over it. How does the equilibrium shift and how does the feedback affect the wave itself?

Members of our faculty are studying some of these questions in a weekly seminar (a lot of oil is burned at midnight, as well!). Professors Steven Dunbar, Glenn Ledder, David Logan, and Tom Shores form the core of the group, and Professors Steve Cohn and Wlodek Domanski have been frequent attendees of the seminar.

The department's interests in combustion and explosion phenomena go back to Logan's association with Los Alamos National Laboratory, where he has been a consultant and visiting staff member with the shock-wave physics group since 1978. After a year's leave at Rensselaer Polytechnic Institute in 1988-89, where Professor Logan worked with one of the world's leading experts in combustion, Professor Ash Kapila, our department hired Dr. Glenn Ledder, one of Kapila's students. Glenn has been a real force in the department's research effort in combustion, and for this coming summer he has organized a mini symposium in combustion at the International Conference on Industrial and Applied Mathematics to be held in Washington, D.C.

Steve Dunbar and Tom Shores have also gotten interested in combustion problems from a different angle. Many of the mathematical problems encountered are systems of differential equations and problems that can only be resolved on a computer. Steve's expertise is in dynamical systems, and Tom's area is numerical methods. Their detailed knowledge of these fields have helped the group solve some of the equations that have come out of the physical analysis.

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GRADUATE PROGRAM NEWS

THE department's graduate program had a huge influx of new students this year. About twenty new graduate teaching assistants, or GTA's, joined the program last fall, and another eight joined in January. Those new recruits brought the number of GTA's to about fifty-seven, the largest number ever. An additional ten to fifteen graduate students not supported by the department make a total of about sixty-seven graduate students in all. The number of applicants to the graduate program has risen sharply. From June to Decem-

ber 1990 we had 307 inquiries about our program. Most of these came from abroad (229 from China alone); 33 were inquiries from U.S. students.

This was the second year of our graduate student awards for the Best Performance as a First-Year Student and the Best Performance on the Masters/Qualifying Exam. These awards carry stipends of \$500 and \$700, respectively. The winner in both categories this year was David Jorgensen, a graduate student originally from Iowa who did his undergraduate work at San Diego State



Applied Math group (left to right) Steven Dunbar, Glenn Ledder, Tom Shores and David Logan

University in California. David has not yet decided what area of mathematics to pursue, but his achievements in graduate school so far have been excellent. To our knowledge, he is the first student to pass our Ph.D. Qualifying Exam with only one year's graduate school experience.

Sandeep Holay is the first recipient of an Emeritus Faculty Fellowship for \$1000. These fellowships were started last year through contributions to the Foundation made by our

UNL departmental faculty; the goal was to establish a permanent fund that will provide support for graduate students while honoring our retired faculty. Sandeep came to UNL after two years of graduate work at Purdue. In his first year he passed both the Qualifying Exam and the Ph.D. Comprehensive Exam while making A's in all of his coursework. During the Fall Semester we made some changes in our graduate examination structure. The three exams required to qualify for



David Jorgensen

the Ph.D. program must now include both algebra and analysis; the third exam may be in any area. There was no change in the statistics exams. For the Ph.D. Comprehensive Exam a math student no longer is required to write an exam in complex analysis; rather, the complex analysis sequence 924-925 and Topology 871 are re-

quired courses for the program. The language requirement for the Ph.D. was reduced to one language; a statistics major must replace the language exam by a demonstrated knowledge of computer science. These changes are consistent with the national trends observed at other universities.

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Math Day, from p. 1

Math Day 1990 had its beginnings in October, 1989, when Jim Lewis, Chair of Math-Stat, declared that we should have a Math Day. Profs. Rao Chivukula and Gordon Woodward visited Colorado State University (CSU) in November to observe their Math Day. They had one PROBE exam (Problems Requiring Original and Brilliant Effort), much like our PROBE II, and a Bowl tournament. It was very exciting; definitely something we felt we should do too. Rao and Gordon, the principal organizers for our Math Day, set out to make it happen.

CSU's PROBE highlighted the best students in Colorado. They gave scholarships to the top ten. Their Bowl tournament was an exciting spectator team competition and it focused some much needed high school attention on math and the math clubs. But these teams tended to be dominated by one quick, bright member. Rao and Gordon also visited Math Days held at Creighton and looked over another one run by Wesleyan. In contrast to CSU's, Creighton and Wesleyan both had team competitions in which each member was important, but they lacked the spectator aspect. CSU had its math day on a Thursday and

over 700 students came; Wesleyan had trouble getting non-local schools to come on a Saturday. We wanted a math day that would attract Nebraska high schools both close and far, offer each participant a chance to contribute, promote the mathematical sciences among the high school students, and promote a major in mathematics and statistics at UNL. With these goals in mind, we decided to go basically with the CSU model with some modifications: split the PROBE into a qualifying and a final exam with a team competition built into the qualifying exam, a team competition that would be very difficult to win on the basis of one star player; encourage UNL science departments to set up displays; set up a mathematical game, puzzle, and information room for the student's idle times; and introduce the students to campus through a free lunch in the dorms and campus information and tours.

During this early planning many opinions were sought, but Jim, Walter Mientka, Don Miller, and Chris Tiahrt were most instrumental. Still remaining was the problem of how to attract schools over 150 miles distant. Most of them would have to stay over Wednesday night. By April we had solicited the opinions and sugges-

tions of over 40 high school math teachers throughout the state and discussed our ideas and needs with the Dean of Arts and Sciences and the Vice Chancellor for Student Affairs. In early May we sent out the official UNL Math Day 1990 announcement to over 380 Nebraska high schools. This mailing also included samples of the PROBE and Bowl questions which were provided by our questions committee: Profs. Earl Kramer, Walter Mientka, and Chris Tiahrt, committee chair. Their next task was to produce 289 questions for the Bowl tournament, 25 for PROBE I, and 8 for PROBE II—all error free and satisfying rigorous constraints: for the next two months Chris had a varied diet of questions, questions, questions, editing, editing, editing. The final product was perfect and beautifully edited. And we are proud to say that everyone in Math-Stat, faculty and staff, who was in the state of Nebraska on Thursday, November 15th, helped out: at least thirty of us at all times helping in the Union and 17 of our more senior faculty in OldH

grading PROBE II.

No doubt you're itching to try one of our PROBE II questions. We've picked out two, a short-answer not-so-easy one and a difficult not-so-short-answer one. (We'd be happy to provide the complete PROBE II exam, with answers, to anyone who asks.)

- 1) The model city of Triopolis is to have $(3^3)^3$ buildings. From each building lead exactly three walkways to other buildings. None of the walks are to branch or cross, although they may twist and turn. Explain the mathematical flaw in this plan.
- 2) What is the maximal number of $3 \times 5 \times 6$ boxes which will fit in a $7 \times 11 \times 14$ crate? Completely justify your answer. You may assume that the sides of the boxes will be parallel to the sides of the crate.

Have you any suggestions for PROBE II questions? Just send them to the Department marked, Attention: Math Day. Volunteers are always welcome!

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THE WESTERN MATHEMATICS SCHOLARS PROGRAM

IN the summers of 1986-89 three members of the UNL Department of Mathematics and Statistics (Mel Thornton, Don Miller and Jack Eids- wick) conducted a teacher enhancement program called the Nebraska Mathematics Scholars. This program was funded by a major National Science Foundation grant and ultimately involved 90 secondary school math teachers from across the state. Encouraged by the success of that program, Thornton and Miller took it as the model for a regional program, the Western Mathematics Scholars, which will involve 138 7-12 mathematics teachers from a five state region: Colorado, Nebraska, North Dakota, South Dakota, and Wyoming. The Western Math Scholars will operate under a \$1.19 million grant from the National Science

Foundation.

The participants will be divided into three groups, one of senior high (10-12) teachers, the second composed of junior high and middle school teachers, and the third made up of teachers from small rural schools who teach all of the mathematics in grades 7-12. During the summers of 1991 and 1992 these groups will participate in 5-week sessions at campus sites in Cheyenne, WY, Chadron, NE and Rapid City, SD. During the two following academic years the teacher participants, working in pairs, will conduct workshops for teachers in their immediate areas, in which they will share course content, teaching strategies, and technological expertise with computers and graphics calculators. The courses to be taught in the program include Geometric Per-

spectives and Modeling with Modern Technology (in 1991) and Data Analysis and Discrete Mathematics (in 1992). Each of the five states conducted its own selection process; Nebraska was extremely fortunate to have twice as many applicants as available slots.

The program will be managed by five state directors, including Mel Thornton and Terry Jenkins (University of Wyoming professor, who received his Ph.D. from the University of Nebraska under the supervision of William Leavitt.) UNL Professor Don Miller will be the overall director of the Western Mathematics Scholars program. Each of the five states also has a state director; UNL Professor Mel Thornton will serve as state director for Nebraska.

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THE NEBRASKA MATHEMATICS COALITION

IN 1985 the National Research Council created the Mathematics Sciences Education Board (MSEB) to stimulate and coordinate national reform of mathematics education. One of the first projects undertaken by MSEB, through a grant from the Exxon Education Foundation, was the funding of planning grants for the establishment of state mathematics coalitions. A state mathematics coalition is an alliance of leaders working to revitalize mathematics education on the state level. Its members come from three constituencies: the Public Policy sector, the Corporate Sector, and the Education Sector.

Nebraska was one of 25

states to receive a planning grant for the year 1989-90. The leadership of the Nebraska Mathematics Coalition includes UNL mathematics faculty members Don Miller (director), and Jim Lewis (associate director), as well as Deborah Romanek, Nebraska's state mathematics consultant (associate director). Its Board of Governors is cochaired by Robert Duncan (President and CEO of Duncan Aviation) and D.B. (Woody) Varner (former president of the University of Nebraska.)

Among the 35 members of its Board of Governors are:

- Public Policy Sector: Senator Robert Kerrey, Governor Ben Nelson, three state senators, and the presidents of the

Nebraska Association of School Boards, the Nebraska Congress of Parents and Teachers, the Nebraska Farm Bureau Federation, and the Nebraska State AFL/CIO;

- Corporate Sector: Six corporate CEOs, the publisher of the Norfolk Daily News, and the manager of farm radio station KRVN, Lexington;

- Education Sector: The State Commissioner of Education, the presidents of the University of Nebraska and Chadron State College, and the Executive Director of the Nebraska Coordinating Commission for Post-Secondary Education.

In seeking to complete its first year core budget, the Nebraska Mathematics Coalition has secured pledges of support from the Peter Kiewit Foundation, the University of Nebraska Foundation, and University of Nebraska President Martin Massengale, as well as a personal commitment from Woody Varner. In addition the 1991-92 budget of the Appropriations Committee of the Nebraska Legislature includes a major line item for the Nebraska Mathematics Coalition.

One of the first scheduled activities of the Coalition is a fall conference ti-

tled "Mathematics is Fundamental". Invited participants will include seniors from Nebraska's 16 teacher training institutions, while the presenters will be invited master teachers from grades K-12 who have developed mathematics activities of significant content which exemplify the conference theme.

A second round of planning proposal submissions was conducted by the National Science Foundation in the fall of 1991, as a result of which all 50 states now have a state mathematics coalition in place. At a February meeting of the state coalition directors, it was discovered that five of the mathematics coalitions are under the directorships of faculty members or graduates of the UNL Department of Mathematics and Statistics. These include Jack Beal (Washington), Enid Reeder Burroughs (New Hampshire), Terry Jenkins (Wyoming), Linda Zech (Nevada), and Don Miller (Nebraska).

Long range prospects for the Nebraska Math Coalition hinge on the outcome of a pending proposal to the National Science Foundation for support of a statewide systemic initiative, discussed below.

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NEBRASKA'S STATEWIDE SYSTEMIC INITIATIVE IN MATHEMATICS, SCIENCE AND ENGINEERING EDUCATION

IN THE SUMMER OF 1991, AT THE SAME TIME NEBRASKA AND other states were developing proposals for state mathematics coalition support, the National Science Foundation announced a solicitation for "Statewide Systemic Initiatives" (SSI) in mathematics, science, and engineering education. These initiatives were intended to broaden the impact and accelerate the pace of improve-

ment in those areas at all levels from kindergarten through college. In a sense, they could be viewed as state responses to the six national goals for education proclaimed by President Bush in his 1990 State of the Union message. The fourth of those goals was: "By the year 2000, U.S. students will be first in the world in science and mathematics achievement."

Following the NSF protocol, Governor Kay Orr submitted a letter of intent to NSF, outlining Nebraska's plans for an SSI. With subsequent encouragement from NSF, a formal proposal was submitted in October 1990, with Don Miller, Jim Lewis, and Mel Thornton, all of the UNL Department of Mathematics and Statistics, listed as principal investigators. The requested amount of support was \$4.47 million, to be spread out over a 5 year period (and to be matched or exceeded by local support during the same period.)

Among the goals of the Nebraska SSI are:

- a public awareness campaign to generate statewide support for mathematics education reform;
- a revised elementary school mathematics curriculum, so grades K-6 can achieve the mathematics currently covered in grades K-7;
- a distance learning project, designed to use a combination of satellite-transmitted courses, interactive videodiscs, and an electronic communications network to make available to Nebraska's small rural schools the same breadth and quality of mathematics education now open only to students in the state's largest school districts.

Of the 30 states which submitted SSI proposals, 13 were selected by NSF to receive site visits. Nebraska, one of the 13, received its visit from a six member team in mid March of 1991. It is anticipated that from 8 to 10 of these 13 states will receive NSF funding in this first year of the SSI program. We expect to learn by mid May whether or not Nebraska will receive its requested funding.

If we receive our requested SSI grant, we will be able to move forward rapidly on several fronts, all focused on the improvement of mathematics education in Nebraska.

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ERNIE AND KATHY HAIGHT VISIT

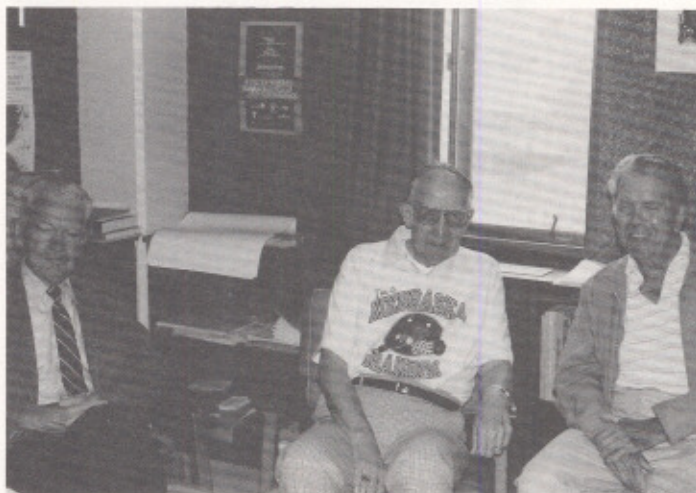
ERNIE HAIGHT, AN ALUMNUS OF THE DEPARTMENT OF Mathematics and Statistics and, with his wife, Kathy Haight, a generous supporter of the Department, recently visited Math-Stat. The following report on the Haight's visit was filed by the Department Chair, Jim Lewis. We invite other alums to make a visit to the Department part of any trip to Lincoln:

An educator's greatest reward is to learn that he's made a difference in the life of one his students. Last September, Professors Emeriti Bill Leavitt and Lloyd Jackson had such an opportunity when Ernie and Kathy Haight visited the Department of Mathematics and Statistics. Ernie was a graduate student here from 1951 to 1953, earning his Masters Degree. Kathy taught in the Lincoln public schools and Jack, the Haight's oldest of their four children,

was born in Lincoln.

Ernie Haight, who received his M. A. under the direction of then Department Chair Miguel Basoco, took classes not only from Bill Leavitt and Lloyd Jackson, but also from former faculty members Ed Halfar and George Seifert. While in Lincoln for a football game last September, Ernie and Kathy had an extended visit with Bill and Lloyd. They spoke of old times and old friends as Ernie told Bill and Lloyd how much they and others had meant to him.

In a letter following his visit, Ernie had this to say. "I'm sure you could tell we all had tremendous respect for Dr. Basoco. I also have great respect for Bill Leavitt and Lloyd Jackson. I was pleased to learn that they had kept in touch with George Seifert. These three plus Dr. Basoco made Nebraska a great place to do graduate work after World War II. The longer I live and the more I experience, the more I realize how much I acquired in the way of wisdom from people like Basoco and Jackson that went way beyond mathematics."



E. Haight (center) with Profs. L. Jackson and W. Leavitt (right)

While visiting with Ernie and Kathy Haight, we learned that they grew up in Michigan and met at Hope College where they received their B. A. degrees. Ernie indicated that one of the reasons he came to Nebraska was that the department was willing to let graduate students teach freshman mathematics classes. The Hights still correspond with friends from their graduate school days. Among the alums they mentioned were Hans and Sylvia Jeans of Palo Alto, John and Bertha Anderson of Greencastle, Indiana, Kellam and Beverly Rigler of Rolla, Missouri, and Gerald and Jeanette Heuer of Moorhead, Minnesota.

The Hights have many fond memories of their days at the University and of life in Lincoln: of the doctor who only charged half his normal fee to deliver their child; of the landlady who did their washing for a dollar a week although it cost her fifty cents for the washing machine; and of the UNL faculty and of their fellow graduate students.

Since leaving Nebraska, Ernie Haight has been involved in digital computer related work, for many years with Martin Ma-

rietta Corporation in Orlando, Florida, developing real-time software and firmware for weapons and communications systems.

While visiting with Ernie, I was pleased to learn that he felt that a number of what might be viewed as abstract analysis courses

turned out to be important to him in his work. Certainly for Bill Leavitt, Lloyd Jackson and myself, it was quite a pleasure to meet Ernie and Kathy Haight.

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LETTER FROM THE CHAIR

WE HOPE YOU HAVE ENJOYED READING THIS ISSUE OF THE Math-Stat Newsletter. The Department of Mathematics and Statistics is an exciting, busy place. The lives of our faculty are enriched by the opportunity to work with many outstanding students both at the undergraduate and the graduate level. And, of course, the disciplines of mathematics and statistics continue to provide the stimulation that attracted us in the first place.



Math-Stat Chair Jim Lewis

support from the College of Arts and Sciences, and a small entry fee formed the base of our funding for the event. While the Eastman Fund was available to offer scholarships to potential math majors, it took a cooperative effort between the Deans of Arts and Sciences and of Business and Engineering, as well as the Vice Chancellor for Student Affairs, to piece together the rest of our scholarship package for our first Math Day. So, while Math Day is an exciting way to showcase outstanding high school math students, the long term existence of Math Day may depend on the ability of the University of Nebraska Foundation to find private support for Math Day.

Computing is another place where new opportunities also mean new expenses. As faculty begin to integrate computing into their teaching, new equipment and software become necessary. While we seem able to find certain sources of funds to obtain new computers, it is alumni support that is used to purchase the software or the attachments needed for classroom demonstrations.

Less exciting but quite important are the changes we have made in our instructional program. Last summer we instituted a new Math Placement Exam. Last fall we required the exam of all freshmen but now it is required of all students who take freshman level courses in our department. Early data indicate that use of the Math Placement Exam improves our students' success in our courses. Also, starting this past January, we have completely revised our precalculus mathematics courses. Gone are the half semester courses Math 100, 101 and 102 that had existed for nearly 20 years. In their place are an expanded list of semester long courses that we hope will also contribute to increased student success.

Finally, let me highlight my recent opportunity to meet Ernie Haight and his wife Kathy. Ernie was a graduate student in the 50's and has been a strong supporter of the Department. We had corresponded for the past few years, and I really enjoyed at last meeting him and Kathy in person. I certainly would like to encourage other alumni to visit or write. We appreciate your support and we enjoy hearing from you.

Have a good year.

Jim Lewis

Jim Lewis

The Math-Stat Newsletter is one of the ways that we strive to keep in touch with friends and alumni of the department. Many of you have made contributions to the Math-Stat Fund during the past year or to the new Emeritus Faculty Fellowship Fund. We want you to know how much we appreciate your support and how important it is to us. In a sense, this newsletter is our report to you. We hope you find it interesting and that you approve of what we are trying to do at your University.

As Chair of the department, my first responsibility is the same as that of the manager of a winning baseball team—to avoid over-managing. We have a very talented faculty who do very exciting things, when given the freedom, resources and time to do them, so your contributions are very important to us.

Math Day (see page 1) is an excellent example of an exciting new program with an obvious price tag. Alumni contributions,

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