IOWA
SECTION
NEWSLETTER

SPRING MTG.

April 21 - 22

CEDAR FALLS
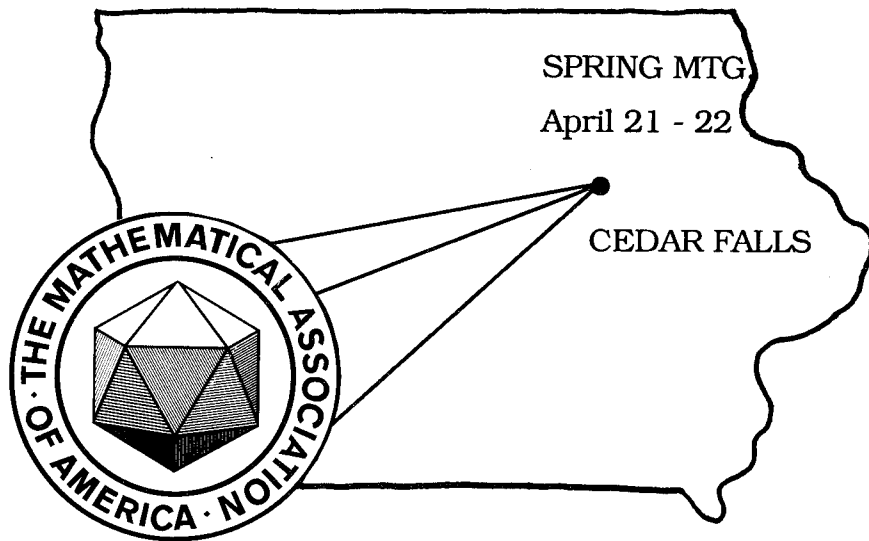
FALL 1994

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SPRING SECTION MEETING
at
University of Northern Iowa
Friday and Saturday
April 21-22, 1995

The University of Northern Iowa will host the Spring Meetings of the Iowa Section of the MAA on April 21-22. Barbara Faires, Westminster College, New Willmington, PA, and Izaak Wirszup, University of Chicago, have been invited to speak. Faires is from the MAA. Plans are being made to have the IAMATYC meet jointly with the MAA. Please send any program suggestions to Greg Dotseth, Department of Mathematics, University of Northern Iowa, Cedar Falls, IA 60613; Email: dotseth@math.uni.edu.

The following is a tentative schedule.

Friday, April 21

Registration	1 p.m.
Student Papers	1:30 p.m.
Forum-Discuss changes in calculus	4-5:30 p.m.
Dinner on your own	
Speaker	7:30-8:30 p.m.
Informal reception	8:30-10:30 p.m.

Saturday, April 22

Registration	8 a.m.
Speaker	9-10 a.m.
Welcome	10:15-10:20 a.m.
Speaker	10:20-11:20 a.m.
Business meeting	11:20-11:50 a.m.
Lunch on your own	
Concurrent sessions	1:30 p.m.

NATIONAL MEETING
SAN FRANCISCO, CALIFORNIA, JANUARY 4-7, 1995

BOARD OF GOVERNOR'S MEETING
MINNEAPOLIS, MINNESOTA
LYNN J. OLSON

The Math Fest was held in Minneapolis this past August. In conjunction with this meeting I attended the semiannual meeting of the MAA Board of Governors. Of particular interest to our members is the expanded MAA electronic services. Among these services the MAA has recently added Gopher and World Wide Web servers and has enhanced its electronic mail capabilities, and is preparing to add an electronic mail list server. These services will certainly change how the MAA communicates with its members and will change the way in which the organization conducts its business. Check the June issue of "FOCUS" for details.

The agenda for the working lunch (who thought of that idea?) was board effectiveness. Many ideas surfaced but one that seems to have gained favor is to have board members take active roles on working committees. At present the board members are only "figure-head" members on committees. I will be on a special task force studying ways to increase effectiveness. If you have any ideas, please let me know.

I would also like to note the MAA's Strategic Plan. Highlights were in the April issue of "FOCUS." This plan describes the mission with particular program and operational goals. Hopefully these goals can be used in formulating and evaluating new proposals. There seems to be a commitment to do so and also a commitment to regularly evaluate and update the plan.

Of special note should be the publications of the MAA. Both "Knot Theory" and "The Search for E.T. Bell" have received special honors. In addition, "Horizons" is doing well. Thanks for your support.

Andrew Sterrett is still looking for subjects for career essays. If you have any former students with interesting or unique careers connected with mathematics please contact him.

Finally, I would like to remind you of the winter meeting in San Francisco (January 4-7) and the summer meeting in Burlington, Vermont (August 6-8).

COMMENTS FROM THE CHAIR
Emily Moore

First, my thanks to all who made our spring meeting a success: speakers, judges, and advisors. Each year our Chair Elect must assemble the program for our meetings—often with little prior experience with these duties. I would encourage you to give Greg Dotseth your enthusiastic support for our next meeting at UNI on April 21-22, 1995.

We have an opportunity to recognize the importance of excellence in teaching through the MAA section Distinguished Teaching Award. See Steve Nimmo's article for details.

This year our section must elect a new governor for a three-year term starting June 1995. Lynn Olson has agreed to chair our nominating committee. Please send nominations to him, or call him to discuss the duties of the office. The deadline for nominations is November 15, 1994. The national office will mail ballots.

Last year Reg Laursen started to prepare an e-mail directory of our members. I would like to move this project along. Anyone wishing to be listed in this directory should send his/her e-mail address to me. The short-range goal is to make it easier for our section officers to communicate with the membership on a timely basis, and for our program chair to assemble all the details for our program. The eventual goal is to store the list on-line available to all our members.

Finally, let me encourage you to contact me or other section officers if you have projects you would like our section to pursue.

CALL FOR NOMINATIONS FOR 1995 IOWA SECTION AWARDS FOR DISTINGUISHED COLLEGE OR UNIVERSITY TEACHING OF MATHEMATICS

Nominations for the fourth (1995) Iowa Section Awards for Distinguished College or University Teaching of Mathematics are now being accepted. The Iowa Section Selection Committee will choose one of the nominees for the Section Award. The awardee will be honored at the Spring 1995 meeting of the Section and will be widely recognized and acknowledged within the Section. The awardee will also be the official Section candidate for the pool of Section awardees from which the national recipients of the MAA Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics will be selected except that one of the national winners may be selected from another source. There will be at most three national awardees, each of whom will be honored at the national MAA meeting in January 1996 and receive a $1,000 check and a certificate.

Anyone is entitled to make a nomination, but nominations from chairs or MAA representatives in departments of mathematical sciences are specially solicited.

We urge you to submit a nomination if you have someone eligible and qualified in your department in order that your candidate has an opportunity to be considered for the Section Award, and if so selected, also for the national award. Even if not selected this year, it is an honor for someone to have been nominated; your department will receive recognition for its commitment to excellence in teaching, and the work done in preparing a nomination folder for your candidate is not wasted since your candidate can be nominated again in a future year. Self-nomination is not permitted.

In addition to discussing this memo with your colleagues, preferably at a department meeting, please post it in a prominent place in your department.

Eligibility

- College or university teachers assigned at least halftime during the academic year to teaching a mathematical science in a public or private college or university (from two-year college teaching through teaching at the Ph.D. level) in the United States or Canada. Those on approved leave (sabbatical or other) during the academic year in which they are nominated qualify if they fulfilled the requirements in the previous year.

- At least five years teaching experience in a mathematical science.

- Membership in the Mathematical Association of America.

Guidelines for Nomination

The nominees should:
- be widely recognized as extraordinarily successful in their teaching*
- have teaching effectiveness that can be documented
- have had influence in their teaching beyond their own institutions**
- foster curiosity and generate excitement about mathematics in their students.

* "teaching" is to be interpreted in its broadest sense, not necessarily limited to classroom teaching (it may include activities such as preparing students for mathematical competitions at the college level, for example, the Putnam Prize Competition or the Mathematical Contest in Modeling, or attracting students to become majors in a mathematical science or to become Ph.D. candidates).

** "influence beyond their own institution" can take many forms, including demonstrated lasting impact on alumni, influence on the profession through curricular revisions in college mathematics teaching with national impact, influential innovative books on the teaching of college mathematics, etc.

Nominations must be submitted on the enclosed "Nomination Form." Please follow the instructions on that form precisely to assure uniformity in the selection process both at the Section and National levels.

If a file of a Section awardee significantly exceeds the prescribed limits (as stated on page 2 of the Nomination Form), it will not be considered for a national award and be returned to the Section.

Please send a copy of each nomination packet to:
Steven D. Nimmo, Secretary
Iowa Section
Morningside College
P.O. Box 6400
Sioux City, IA 51106
so as to be received no later than January 1, 1995.

The Section Selection Committee will select the Section awardee during January and communicate its selection to the National selection committee no later than February 1 so that that National committee can then make its selections.

We look forward to your participation in this exciting MAA venture of taking substantive action to honor extraordinary successful teaching. We want to see such teaching recognized at all post-secondary school levels. We depend on you to help us identify those who merit such recognition.

Mathematical Association of America Awards

Nomination Form
(please type)

Name of nominee (last name first) _____

Name of college or university _____

College or university address _____

College telephone ( ) _____

Home telephone ( ) _____

Number of years of teaching experience in a mathematical science _____

Has the nominee taught at least half time in a mathematical science for the past three years (not counting a sabbatical period)? _____

Activities related to teaching _____

_____

_____

Publications related to teaching if any (list no more than five) _____

_____

_____

_____

Membership and significant activities in relevant professional organizations

_____

_____

Previous awards for teaching, if any _____

_____

Additional relevant information _____

_____

Name of nominator (last name first) _____

Address of nominator _____

_____
Signature

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Evidence of Success in Teaching

Please describe the nominee's success in teaching by providing a narrative of the nominee's background, experience, teaching style, special contributions, and other related information not already included in the Nomination Form. Limit this portion to no more than four pages, which must be typewritten and double-spaced on one side only of an 8 1/2 x 11 paper. Type size, whether work processor or typewriter, should be no smaller than 12 point (pica) in size.

You are also requested to submit no more than 3 pages of evidence to document the nominee's extraordinary teaching success. For example, a sample of student survey results (including pertinent information about the form used, how it was administered, and the meaning of the scores given), increases in numbers of mathematics majors or Ph.D. candidates, or student successes in mathematical competitions.

In addition, you may include a maximum of five letters of recommendation (limited to one page each) with at least two from the nominee's present or former students and at least two from colleagues (one of whom could be the department chair).

Curricula vitae should not be submitted since the information from them relevant to teaching success should be included in the Nomination Form and the other documents mentioned above.

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A GRAPHING CALCULATOR PROGRAM AT IOWA

Professor John P. Lediaev is spearheading the graphing calculator program at the University of Iowa. After implementing them in his own courses, he has given several workshops on graphing calculators for faculty, teaching assistants, and students. As a result, nine faculty and forty teaching assistants have already used graphing calculators in their courses, and more are considering them for future courses. This year, more than 2,500 students are enrolled in eight courses which are implementing them. Most of these students are required to have a graphing calculator, the remaining ones are strongly recommended to buy them. Texas Instruments TI-82 is used in Basic Algebra, College Algebra, and Trigonometry, while the TI-85 is used in Calculus for the Biological Sciences, Precalculus, Mathematics for the Biological Sciences (in spring 1995), and some sections of Calculus I and Calculus II.

In addition to the support received from the faculty, staff and teaching assistants, this program also received support from the administration (departmental, collegiate, and university).

In 1991, when Professor Lediaev became interested in implementing graphing calculators, he also decided to implement two other elements of the Calculus Reform Movement: cooperative learning and the project approach. He first implemented these methods in Elementary Group Theory (in 1992) and then in a large lecture course Calculus for the Biological Sciences (in 1993).

To facilitate the exchange of "reform" ideas amongst the faculty and teaching assistants, he also founded a Seminar in Undergraduate Mathematics Education (in the Mathematics Department). This weekly seminar is well attended; it is usually lively, and sometimes quite heated.

CALCULUS "REFORM" NEWS
from the University of Iowa

This year we expanded our offering of our "calculus with computing" course. Four new faculty, Professors Atkinson, Durumeric, N. Johnson and Muhly, and 11 new graduate T.A.'s are teaching about 450 students. Professor Stroyan and two experienced T.A.'s are also teaching.

The computer use fee allowed us to replace some of our oldest computers and purchase some new ones and thus allow this expansion. We brought some used NeXt's from our Library and Luthur College, as well as some new DEC pentiums. These are all networked using NeXtStep.

COURSE DESCRIPTION: CALCULUS USING MATHEMATICA
by Keith Stroyan

The University of Iowa offers a special new calculus course. In addition to developing students' basic skills and concepts, our course presents calculus as the 'language of science' and has students actively doing mathematics in laboratory-type projects. The dedicated labs associated with the course use Mathematica computing for once weekly electronic homework as well as in the larger projects.

Our students develop skills and then learn why calculus is important by applying their skills to answer difficult questions of clear contemporary interest such as: 1) What is a sustainable harvest level for Sea Whales? 2) Why was polio eradicated by vaccination, but not measles? 3) Will a bungee diver smash into the bottom of the canyon? 4) How do you calculate the inverse of $y = x^{\wedge}x$ yourself? 5) What is the resonant frequency of an electrical circuit? Carefully selected scientific problems guide our curriculum and motivate the ideas of calculus for our students. Their answers to these large problems are presented in the form of 10 (or so) page term papers once or twice per semester.

Mathematica programs (called NoteBooks) play several important roles in our presentation of calculus. First, we use the computer to illustrate and reinforce basic mathematical concepts. Second, up-to-date scientific computing helps us reduce technicalities and concentrate on the main ideas of calculus. Computing also allows us to deal with the more realistic applications that are too "messy" to compute by hand.

Our course is accelerated in that we treat the main topics from roughly three semesters of traditional calculus. This is a rough comparison, because modern computing allows us to treat "advanced" topics like phase plane analysis of nonlinear differential equations. Engineering students who work the project on resonance are exempted from sophomore engineering differential equations.

IS THERE NEED/INTEREST IN A MATHEMATICA WORKSHOP?

by Al Hibbard

Mathematica is one of several software programs which hold the potential for changing the way we teach. As with any other tool, one must first learn how to use it before one can apply it. Many of us may have Mathematica available, but have insufficient experience to use prewritten Mathematica materials, let along trying to program in Mathematica.

I am trying to measure the level of interest in a possible minicourse at the next sectional meeting (or a one-day workshop at some other time). If there is sufficient interest, I will try to organize the event(s). To that end, consider the following questions:

1. Do you have Mathematica available to you and/or your students?
2. Do you wish you had a better grasp on the syntax and use of the built-in functions of Mathematica?
3. Are you interested in learning to program in Mathematica so you can use the program more effectively in your teaching and/or research?
4. Are you interested in using prewritten Mathematica notebooks, but not particularly interested in learning how to program in Mathematica itself?
5. Do you have sufficient background in Mathematica that you could contribute to a workshop session?

If you answered #4 with a resounding 'yes', then you may wish to check out MathSource at Wolfram Research, Inc. by ftp'ing to mathsource.writ.com or e-mailing to mathsource@wri.com. (You may also wish to check out the Mathematics Archives at archives.math.utk.edu via ftp or gopher or WWW. More details in the October, 94 *Focus*.)

If you answered #1 - #3 affirmatively, would you be interested in a minicourse/workshop? Do you have any suggestions for format? level? (beginning, intermediate, advanced) Time?/Location? (at the sectional meeting or some other time, hosted at Central or elsewhere) I would appreciate feedback being sent to me, Al Hibbard, by e-mailing to hibbarda@central.edu.

If you answered #5 positively (even with a hesitant 'yes'), I would also greatly appreciate being contacted.

CAMPUS NEWS

BUENA VISTA COLLEGE

Dr. Nasser Dastrange, Associate Professor of Mathematics, attended the following National Science Foundation Workshops during the summer:

1. The NSF Calculus Reform Workshop at the University of Redlands, CA, June 26-July 1, 1994
2. The NSF "2-Week Summer Institute" for professors of Mathematics and Mathematics Education in both content and methods to study, practice, and discuss the mathematics reform ideas expressed by NCTM and MAA. The Summer Institute was held July 24 to August 6 in Florida International University, Miami, FL.

CENTRAL COLLEGE -- Donald Meyer reporting

Professor Tom Iverson has been serving as Interim Academic Dean, beginning in January, 1994. He has completed his term upon the arrival of our newly appointed dean, Dr. Virginia Coombs.

In March, Professor Agnes Andreassian served on a review panel for proposals submitted to the National Science Foundation's Instrumentation and Laboratory Improvement Program.

Professor Andreassian participated in the Purdue Workshop on Abstract Algebra, June 9-19, 1994. In addition to abstract algebra itself, the program dealt with four major themes: use of the computer to help students learn abstract algebra, cooperative learning in groups, abstract algebra classes without lecturing, and what research tells us about learning and teaching abstract algebra.

Professor Mark Johnson joined the department staff in September. He has recently completed his Ph.D. at the University of Wisconsin, writing a thesis in the area of mathematical logic.

Professor Al Hibbard participated in a two-week Interactive Mathematics Text Project (IMTP) workshop this past summer and a subsequent (IMTP) Developer's Conference this October.

CLARKE COLLEGE -- Carol Spiegel reporting

Terry Jenkins completed his Ph.D. in Mathematics Education at the University of Iowa last December. Sisters James Marie Gross and Carol Spiegel attended the "Using Mathematica to teach Calculus" at

UW-LaCrosse in June and the Harvard Consortium Workshop at St. Paul in August, prior to using the Hughes-Hallet text for the first time this fall.

COE COLLEGE - Charles Lindsay reporting

Jon White, a recent Coe graduate with his M.S. from the University of Iowa, has joined the staff in Mathematics this year. He teaches part-time and serves as a mathematics specialist for the Educational Support Program.

The 1994 graduates at Coe included 9 majors in Mathematics, 12 majors in Computer Science, including 1 double major in Math/Computer Science, and 3 minors in Mathematics.

Coe is currently in the process of installing an electronic classroom for use by the Department. It will include 15 PC's for student use and a projector for both data and video presentations. Current plans are to use the room for classes in computer science, statistics and calculus classes.

Coe has an opening in Mathematics beginning September 1995. It is a full-time, tenure track position. We are searching for someone with a background in Statistics.

DORDT COLLEGE - Mary Wielard reporting

In April, Dordt hosted the Colleges of Mid-America Symposium for the Mathematics, Computer Science, and Physics Departments of member colleges. During the symposium, Dr. Wayne Roberts from Macalester College presented lectures on Problem-Solving and on Calculus Reform.

Professor Calvin Jongsma participated in the Workshop on Calculus Reform at Macalester College in St. Paul, MN.

Professor Arnold Veldkamp attended the Third Conference on the Teaching of Calculus held at the University of Michigan on June 24 and 25.

DRAKE UNIVERSITY - Dave Oakland reporting

All members of the Department (except Alexander) have benefitted from the University's lease of PowerMac 7100 computers. (Alexander will continue to "suffer" with his year-old Quadra.)

Dan Alexander will be giving a contributed paper at the winter meetings on the use of original sources in the teaching of the history of mathematics.

Bernadette Baker received her Ph.D. in Curriculum and Instruction from Iowa State University in the summer of 1994.

Barry Brent, who received his Ph.D. in mathematics (number theory) from Boston University this spring, has joined the department as a Visiting Assistant Professor.

Luz DeAlba is hosted the Iowa-Nebraska Functional Analysis Seminar at Drake on October 15. She has received two internal grants in the past year to support her work and that of the Drake University Problem-Solving Group.

Patsy Fagan is currently serving as President of the Iowa Council of Teachers of Mathematics.

Alexander Kleiner, Jr., is on sabbatical leave this year. During the fall semester he is teaching one section each of first and second semester calculus with mathematica at ISU. In the spring he will be helping to develop some laboratory exercises for use in our calculus courses. He also plans to pursue some research projects and some travel.

Kenneth Kopecky is in his third year of JOVE—a JOint VEntures project with NASA. He and several students use a Silicon Graphics workstation for their collaboration on projects with the Jet Propulsion Laboratory. Ken notes that NASA wants to expand this program to more small schools and invites you to call him for more information.

Milan Randic has returned from his sabbatical leave. He spent about three months at Ochanomizu University in Tokyo, Japan, three months at Texas A&M (Galveston), two months in Ljubljana, Slovenia, and one month in Zagreb, Croatia. The work generated a dozen projects with people in all of these locations. Milan also attended a 10-day conference in Dubrovnik where he was able to see the results of the shelling of that city as well as the nearby burned-out village of Cilipi.

GRINNELL COLLEGE - Thomas Moore reporting

A major project this past year was planning, obtaining, and getting knowledgeable about a new local area computer network. This summer we installed the new network of more than 50 HP 712/60 workstations along with classroom monitors. NSF, Sony, and the college funded the project.

A highlight of the past year was the performance of our two teams in the Mathematical Contest in Modeling. The solution submitted by the team of Robert Ciraldo, Ioannis Sarafidis, and Rupesh Pradhan was one of 52 teams to earn the "meritorious" distinction. The team of James Mills, Subhesh Pakrashi, and Vikram Subramaniam submitted one of the 6 solutions with the highest distinction of "outstanding" and was also declared the ORSA winner and earned a trip to Boston to present their paper at the national meeting of that

organization. No other institution placed teams in these two top categories.

In April, the department hosted the joint Iowa section meetings of the mathematics and statistics organizations. In May the department planned and hosted a high school mathematics competition for the South Central Conference working with teachers from Grinnell High School.

Here is recent news on department members:

Gene Herman will be on leave at the University of Washington (Seattle) second semester. He chairs the MAA's Committee on Electronic Services and the MAA's Advisory Board for the Interactive Mathematics Text Project. He is currently editing a book of computer-based linear algebra exercises developed by the ATLAST project.

Charles Jepsen had the paper "Dissections into 1:2 rectangles" accepted for publication in Discrete Mathematics, is working on two other papers in this area, and directed 3 students (Renee Bourgeois, Karen Ball, and Nikola Zezelj) this summer on research in problems in geometric configurations. One student has submitted a paper, another is preparing to submit a paper, and the third will be cited in the paper mentioned above.

Charlie Jones spent the year on sabbatical at George Mason University where he earned a Masters degree in statistics.

Emily Moore organized the Iowa Section MAA meetings at Grinnell in April 1994, and is currently chair of the Iowa section. In May our department worked with the local high school to host the South Central Conference Mathematics Contest. Emily coordinated this project.

Tom Moore co-organized a statistics workshop for elementary school teachers at the college, and is serving as chair-elect of the Section on Statistical Education of the American Statistical Association.

Anita Solow spent her sabbatical year as the Visiting Mathematician at MAA. She edited a new MAA Notes volume ("Preparing for a New Calculus"), is chair of the AP Calculus exam committee, is an associate editor of the MAA Notes and Reports Series, is a member of the Advisory Board for Math Horizons, and is director of Grinnell's New Science Project.

John Stone continues to direct the department's local area computing network and led the effort to obtain the new HP system. For the past several months he has been busy installing a new system and educating the community on its workings.

Henry Walker organized the first meeting of the Iowa Undergraduate Computer Science Consortium (held in March at Grinnell), co-organized an NSF workshop on "Integrating Formal Methods in the CS curriculum," continues to consult and grade for the AP exam in CS, received a Noyce grant for holding workshops in Iowa and Texas to help upgrade the teaching of CS at the secondary level, and was active in SIGCSE as an officer and committee chair. He has several publications in progress and published the paper (with Vikram Subramaniam and Ivan Sykes) "An Expert System to Place Incoming Students in Mathematics."

Royce Wolf directed students Zack Dietz and Ario Teoli in summer research in topological group theory.

IOWA STATE UNIVERSITY

Dept. of Mathematics – Stephen J. Willson, reporting

Recent retirements at ISU: Professor Wil Barnes retired in May 1994. Professor Barnes was Head of the Mathematics Department at Iowa State University from 1966 through 1982. In this capacity he had a very large role in shaping the ISU math department. For the broader mathematical community he served on the Joint Committee on Employment Opportunities (of the three major national mathematics organizations) from 1977 to 1988, including chairing it from 1978-80.

Professor Jerold Mathews also retired in May 1994. Professor Mathews has long been interested in the history of mathematics and in mathematics education. In 1970, he obtained an NSF grant to equip a computer laboratory, and since then he has been centrally involved in curriculum development, especially for calculus supplemented with a computer or the HP-28S calculator. Even after retirement he continues to work on a calculus text integrating computer technology into the curriculum.

Professor Mathews also initiated ISU's MSM (Masters in School Mathematics) program during the 1981-86 period. The program, designed to help current high school math teachers upgrade their knowledge, now has a regular enrollment every summer. In addition, Professor Mathews directed the EMPT (Early Math Placement Testing) program in Iowa. The program provides mathematics testing to current high school juniors in order to assess their mathematical skills. This early testing gives them the opportunity to spot and correct deficiencies while still in high school.

Awards: Professor Richard K. Miller from the mathematics Department of Iowa State University has been elected a Fellow in the IEEE (Institute of Electrical and Electronic Engineers). According to the IEEE Bylaws, at most 0.1% of the IEEE membership is eligible for election as a Fellow in any one year, so there is keen competition amongst nominees.

Calculus reform: Graphing calculators are being required in the engineering calculus courses (Math 165 series) taught at Iowa State University. The requirement is being phased in starting Fall 1994.

Department of Statistics – Dean L. Isaacson, reporting

Iowa State University and General Motors have launched a statistics partnership to support a new graduate program in statistics by videotape. This fall the first of two experimental courses is being taught by W. Robert Stephenson to 20 students in an on-campus evening class and videotaped for presentation to 57 students at seven GM locations in Michigan and Ohio. Development of the initial two courses, Applied Statistics for Industry I and II, was supported by a grant from GM. Additional courses will be offered in the next 4 1/2 years to allow GM employees to complete a master's degree in statistics. Both the Department of Statistics and ISU Extended and Continuing Education are cooperating under a contract with GM.

The regular weekly Statistical Laboratory Seminar Series this semester, held primarily on Mondays at 4:10 p.m. in 319 Snedecor Hall, includes the following titles through November, with speakers from the ISU Department of Statistics unless otherwise indicated:

August 31	Strategic planning for Statistics. Dean L. Isaacson
September 12	Statistical consulting via computer. Roel Popping, Department of Sociology, University of Groningen.
19	Interpreting significance levels. Paul N. Hinz
October 3	Life-table analysis for correlated response times. Shin Su Kang
6	Construction of asymptotic tests based on estimating equations. Guido E. del Pino, Department of Statistics, U. Catolica de Chile
10	The power of latent variable models. Daniel W. Russell, Department of Psychology, ISU
17	Bootstrapping extremes of random variables. Jun-ichiro Fukuchi
24	Mark Kaiser
November 2	Title to be announced. Linda Young, Department of Biometry, University of Nebraska-Lincoln
7	John Stufken
14	William Q. Meeker, Jr.
16	Title to be announced. Alan Gelfand
28	Dianne Cook
December 5	Yasuo Amemiya

A three-year grant from the U.S. Environmental Protection Agency has been awarded to Noel Cressie and co-principal investigators Dianne H. Cook, Mark S. Kaiser, and Soumendra N. Lahiri in the Department of Statistics and James J. Majure, manager of the ISU GIS Support and Research Facility. The grant will support research to develop spatial statistical methods for the Environmental Monitoring and Assessment Program. An informal series of seminars on environmental/ecological statistics, beginning September 27 and continuing on Tuesdays, is being presented by the research group.

Derrick Rollins has received a National Science Foundation Presidential Faculty Fellows Award.

Hal S. Stern joined the Department of Statistics and the Statistical Laboratory July 1, 1994 as associate professor with tenure. He received M.S. and Ph.D. degrees in statistics at Stanford University and has been on the faculty at Harvard since 1987.

John Stufken visited the University of Illinois at Chicago during the 1994 spring semester. He taught a class and continued his collaboration with faculty in statistics there and continued to work on a book on orthogonal arrays.

Phil Iversen returned as temporary assistant professor for spring semester 1994 and the summer term. Since completing his Ph.D. in statistics at Iowa State, he had been a senior research associate and half-time lecturer in the University of Newcastle Department of Statistics, in Australia, for a year. He has now joined Lilly Corporate Center as senior statistician.

Wayne Fuller received the 1994 Margaret Ellen White Graduate Faculty Award at Iowa State University on May 4. This $1,500 award recognizes superior performance by a member of the graduate faculty who serves as a mentor and enriches the student-professor relationship through support and attention to detail, enabling students to finish their work in a timely and scholarly manner. Fuller has served as major professor for 26 M.S. and 57 Ph.D. degree candidates. Fuller has also been selected as a fellow of the Econometric Society.

Derrick Rollins, Sr., received the ISU Foundation Award for Early Achievement in Teaching for 1994. Recognition and a $1,000 award were given at the Spring Convocation on May 4. Rollins was cited as having "established himself as a prominent researcher in the new field of probabilistic chemical engineering, and as one of the best teachers at Iowa State University. He has been an innovator in creating new courses that combine statistics and chemical engineering sciences, especially in process control technology."

Soumendra Lahiri was chosen to be the recipient of the ISU Foundation Award for Early Achievement in Research/Scholarship for 1994. Recognition and a $1,000 award were given at the Spring Convocation. Lahiri was cited for having made, in the past five years, "major contributions to the development of an asymptotic theory for 'robust' estimators. The importance of his work has been acknowledged with invitations to speak at three national and two international conferences. He has received National Science Foundation funding since 1991 and was invited to work with top researchers at the Australian National University and Stanford University during 1994."

Toni Genalo received a Regents Award for Staff Excellence on May 4. She is program coordinator in the Statistical Laboratory Survey Section.

Stephen Vardeman was chosen to receive the American Society for Engineering Education's 1994 Meriam/Wiley Distinguished Author Award. He was selected for his textbook *Statistics for Engineering Problem Solving*. Presentation of a certificate and a $2,000 honorarium took place at the ASEE Annual Conference banquet, June 29, 1994, in Edmonton, Alberta, Canada. The biennial award recognizes excellence in the authorship of first-edition engineering books, published within a two-year period, that contribute to the advancement of technical and professional competence at the undergraduate or graduate level.

Frederick Lorenz has been promoted to full professor of sociology and statistics. Soumendra Lahiri has been awarded tenure and promotion to associate professor. He is spending the fall semester as visiting associate professor in the Department of Statistics at Stanford. He had been at Australian National University, Canberra, Australia, from January 16 to June 2, 1994, to work with Professor Peter Hall, Centre for Mathematics and Its Applications.

In the 1993-94 fiscal year, 6 students received BS degrees in statistics. There were approximately 150 graduate students in statistics at ISU within that period. Twenty-six received M.S. degrees and 8 received Ph.D. degrees in statistics (including 2 with co-majors). At the summer 1994 graduation there were 12 additional M.S. degrees and 3 Ph.D. degrees (including one with a joint major) awarded in statistics.

ISU Graduate College Teaching Excellence Awards, recognizing outstanding contributions in the teaching of undergraduate students while working toward degrees, were presented to Peter Morse in December 1993 and to Francis Pascual in August 1994. A Research Excellence Award was given to Jeffrey Helterbrand in December 1993. The Department of Statistics presented the Dan Mowrey Consulting Excellence Award to Andrine Swensen and Li-Ling Wu, and the Vincent Sposito Statistical Computing Award to Mark Peters in May.

Jaehyung Lee received the 1994 George W. Snedecor Award as the most outstanding Ph.D. candidate in the Department of Statistics among students completing the doctoral preliminary examination during 1993. Carter Ann Blakeley received the Vera David Graduate Fellowship in Statistics, given for the 1994-95 year. The award is designated for a woman who has just completed her first year of graduate studies in statistics at Iowa State. Also chosen during the summer was Anindya Roy as the Ph.D. student to receive the Holly and Beth Fryer Scholarship Award.

The George W. Snedecor Undergraduate Statistics Award for 1993-94 was given to Matt Haubrich and Sondra Reis in May 1994. This award recognizes the junior or senior statistics major who has demonstrated the highest level of academic achievement and scholarship.

The two graduate student organizations, Iowa STAT-ers and Mu Sigma Rho (Iowa Alpha chapter), continue to be active. Iowa STAT-ers sponsors a seminar series and social activities ranging from intramural sports to a multicultural party. Scheduled speakers for this fall were:

September 16   Student issues and the Strategic Plan of 1994. Dean Isaacson, Department of Statistics, ISU

21   Statistics and First Deposit Corporation. Steven Mattics, First Deposit Corporation, San Francisco, CA

28   Utilizing the Career Services Office at ISU. Steven Kravinsky, Career Services, ISU

LORAS COLLEGE – John C. Friedel, reporting

Enrollment is up a little again and class sizes are larger in practically all lower-level courses. No changes in faculty personnel but Brenda Tuomi Litka has been granted a sabbatical leave for the year.

Regarding attendance at workshops, Doug McDoniel participated in the N.S.F. conference on P-adic Representation Theory at the University of Iowa and gave two talks on it at Loras.

Steve Mosiman attended a 3-day workshop on field programmable gate arrays at Bloomington, MN. He also took in a Chattaqua course on C++ at Dayton, OH. For a week during June, he participated at M.I.T. in Boston in a Programmable-Array-Logic-based workshop for digital design.

Larry Zettel, chairman, participated in a workshop at the Argonne National Laboratories in December on parallel processing.

Our Visiting Lecture program to high schools continued; four faculty visited 8 high schools in the Tri-State area delivering 19 talks to students and teachers.

Brenda Tuomi Litka once again organized and led a Summer Camp for junior high young ladies, with 12 students participating. It was funded by the phone company U.S. West and helped develop the student's confidence in mathematics and computer science.

Our last graduating class included 5 Mathematics majors and also 5 Computer Science majors, all Bachelor's degrees.

The Mathematics club continues to thrive, moderated by Doug McDoniel and Marlene Pinzka. Along with the student chapter of A.C.M., they made a trip to the University of Wisconsin at Madison for a joint meeting with the Math Club there and to tour the CAD/CAM design labs. Math Club members and staff also toured the Supercomputer Center at the University of Minnesota and continued on to Collegeville to participate in the Pi Mu Epsilon Conference there.

Joyce Becker is very active in NCTM. She gave papers at the State ICTM meeting as well as Regional and National NCTM meetings. She has been all over the country in her capacity as Mu Alpha Theta national president, most notable national conventions in Hawaii and New Orleans. She attended a workshop on the Harvard Calculus reform project at Mathfest in Minneapolis.

Ruth Berger attended a workshop at Purdue University on the teaching of Abstract Algebra with ISETL, as well as a workshop on the Harvard Calculus reform project at Mathfest in Minneapolis.

Richard Bernatz had two papers published in the Mathematical & Computer Modeling Journal, Finite Analytic Solution of a Two-Dimensional Sea Breeze on a Regular GridS in January and An appropriate Algorithm in Parallel Computation for Three-Dimensional HydrodynamicsS in July. He was one of 30 participants selected for the workshop "Revitalizing the Engineering Mathematics, and Science Curricula vis Symbolic AlgebraS" in July at Rose-Hulman Institute of Technology. He worked this summer with a Pew Foundation fellow on Bifurcation points in unsteady, driven, cavity flows.

Gordon Bril worked this summer with a Pew Foundation fellow from Albion College on Iceberg Tracking. He is president of the Iowa Chapter of the American Statistical Association.

Reginald Laursen ended his term as Chair of this Section, presenting a paper on L'Hopital's Rule at the spring meeting.

Alan Macdonald has developed a course on Chaos to be taught this spring. He has also been learning to effectively navigate the internet, especially via the World Wide Web.

Course Reform: Luther changed calculus reform materials from Ostebee/Zorn to the Harvard Project this fall. It is too early to pass judgement. Rich Bernatz has changed our Differential Equations course to be much more project based using MAPLE. Ruth Berger is using ISETL as the basis for an experimental Abstract Algebra course.

Department Statistics: We graduated 2 math/statistics majors, 16 math majors and 8 computer science majors of which 3 were joint. We also graduated 10 math minors.

MIU's biggest news this fall is the acquisition of a computer lab, funded by the National Science Foundation through an ILI grant and by the Roy J. Carver Charitable Trust as well as donations by alumni and friends of the department. We have 10 Power Macs in a newly renovated classroom with custom desks and we have begun by using the powerful built-in graphing calculator and Claris Works, but will begin using *Mathematica* and *Geometer's Sketchpad* soon. Faculty members will be developing *Mathematica* notebooks for use with the Harvard Consortium Calculus text and for use in the core mathematics course taken by all MIU first-year students. *Sketchpad* will be used for both geometry and calculus. This is the department's first use of computers in a major way and there is plenty of enthusiasm!

Steve Nimmo traveled to the Math Fest in Minneapolis this summer and is hoping to attend the conference "Computer Technology in the Upper-Level Undergraduate Mathematics Curriculum" at St. Olaf College in early November.

The entire Mathematics department will attend the "Greater Kansas City Mathematics Technology Expo" in early October. This conference emphasizes teaching mathematics with technology and innovative methods.

This summer (and into the fall semester) we completed the construction of a new computer lab to be used primarily as a mathematics classroom. This new lab is furnished with 20 computers and seating for 40 students. It also has a VGA projection system hooked up to the instructor's station. This new lab will allow us to continue our curriculum development into courses like Appreciating Math (the Liberal Arts math course), College Algebra and Finite Math. In fact, much of this is currently underway.

MATHEMATICS DEPARTMENT - Art Kirk, reporting

The Director of Undergraduate Programs, Charlie Frohman, is organizing an annual statewide mathematics competition to be held in early April. Teams of three from colleges around the state will compete in a Putman style examination. There will be luncheon and discussion following the competition. The winning team will win an award, and the winning team's host institution will be asked to host the competition each ensuing year. The first competition will be in Iowa City this coming April. Contact Charlie Frohman (charles-frohman@math.uiowa.edu) for details.

The Undergraduate Mathematics Seminar meets on Wednesdays at 4 p.m. in B11 MacLean Hall. Various topics in pedagogy are discussed. Speakers so far this year have included John Lediaev, George Nelson, Rose Zbiek, Gene Madison, Theresa Oehmke, and Dan Anderson.

The department has instituted an undergraduate research assistantship program. Undergraduates work with faculty members on research projects and receive a stipend of $1,000. Three students are currently participating in the program and three additional students are expected to enroll this coming semester.

Distinguished Visitor Program: Professor William Beckner of the University of Texas, Austin, will give a series of lectures during the period October 17-21.

Professor Fah Hua Lin of New York University will give a series of lectures during the period October 31-November 4.

Professor Gilles Pisier of Paris VI and Texas A&M will give a series of lectures during the period January 16-20, 1995.

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE

Schaeffer Hall Move: The Division of Mathematical Sciences has outgrown MacLean Hall. Because of the addition of faculty and several computing labs, there just isn't enough room for all that we want to do. Foreign Languages moved to Phillips Hall (former Business College), opening space in Schaeffer Hall where we will be moving (Mathematics and Computer Science will remain in MacLean). This will take place in about two years--after Schaeffer is renovated. We plan to have a separate Department office, conference room, computer labs, and our TAs will once again be housed with us. This will be a great improvement over our current facilities, and we hope that you will visit us in our new quarters.

New Faculty: We are delighted to report the addition of two new assistant professors: Jian Huang (Ph.D., University of Washington, 1994, "Estimation of Regression Models with Interval Censored Data") and Osnat Stramer (Ph.D., Colorado State University, 1993, "Continuous Time Threshold ARMA Processes"). Osnat received her undergraduate training in Israel and has previous teaching experience at both the high school and university level. Her research area will nicely complement the strong time series component in our Department. Jian hails from China where he also had university teaching experience. In addition, he served as a research fellow at the Fred Hutchinson Cancer Research Center. Because of his research in survival analysis, Jian has been invited to the International Workshop on the Analysis of Censored Data in Poona, India from December 28 to January 1, 1995.

Weddings: Wedding bells are ringing. Jens Praestgaard married Amy Huisken in August; Bob Hogg married Ann Burke on October 15, and Russ Lenth married Jane DeWitt on October 22.

Meetings: The Central Regional Meeting of the Institute of Mathematical Statistics (IMS) honoring the 70th birthday of Bob Hogg will be held in Iowa City, Iowa, 15-17 May, 1995. This meeting will be held jointly with the Statistical Education Section and the TQM Section of the American Statistical Association (ASA). The Program Chair is Tom Hettmansperger, Penn State University (tph@psu.edu) and the Chair of the Organizing Committee is Tim Robertson, University of Iowa (troberts@stat.uiowa.edu). Two special invited speakers will be featured: George Box, University of Wisconsin, and Ron Randles, University of Florida. An invited order restricted inference session is being organized by Tim Robertson and will feature talks by Art Cohen, Jens Praestgaard and Tim Wright. Dick Dykstra will be the discussant. We hope that many of you will be able to participate in this meeting and help us in thanking Bob for his extensive service to the University and the statistics profession.

Faculty News: This year saw the implementation of several departmental curriculum changes. In line with this, Russ Lenth is developing a new course in statistical methods and computing. It is intended for first-semester graduate students in Statistics. The goal is to make sure that everybody achieves a certain level of expertise in fundamental statistical methods, statistical thinking, and computing packages before they use them in subsequent courses (or teach them as Teaching Assistants). Russ also wrote a successful proposal to obtain new equipment for a graduate computing lab, and is collaborating on NIH grants in ROC analysis for radiological applications and in family involvement in nursing care of Alzheimer's Disease patients.

Jon Cryer helped secure money to upgrade the computer lab for use in our business statistics course. He was an invited presenter at the NSF Workshop on Statistical Thinking and Teaching Statistics in June 1994 at Rice University in Houston, Texas, presenting three days of lectures to mathematics professors who teach statistics. He continues as Vice-Chairman of the Society of Actuaries Course 121, Intensive Seminar in Applied Statistical Methods, and taught Course 121 in August. Jon is also an Associate Editor of *JASA*. The second edition of his book, *Statistics for Business: Data Analysis and Modeling,* was published by Duxbury Press in 1994. Jon, Darin Lovelace and George Woodworth collaborated on a Minitab handbook to accompany this text book which was also published by Duxbury Press in 1994.

In August 1994, Dale Zimmerman organized sessions on spatial statistics for environmental data for both the Fifth International Conference on Statistical Methods for the Environmental Sciences, in Burlington, Ontario and the Joint Statistical Meetings in Toronto. He also gave an invited talk at the meetings in Toronto, and was invited to speak this year at Texas A&M and Southern Methodist University.

George Woodworth has been Statistician for the Iowa Cochlear Implant Project for nine years. The cochlear implant can restore partial or full hearing to profoundly deaf individuals. It consists of an electrode array surgically implanted in the inner ear (cochlea) which receives signals from an external speech processor the size of a pocket calculator. Sound waves are converted into electrical impulses

which directly stimulate the acoustic nerve. George has jointly authored several papers with members of the implant team. Two of his students, Ron Bosch and Vicente Nunez-Anton wrote Ph.D. dissertations on statistical problems which arose in this work. George and four students, John Castelloe, Chris Najim, Dan Nettleton and Shuxuan Zhao, are about to submit a paper on another statistical problem related to the cochlear implant project.

Elias Shiu was a member of the Organizational Committee and Scientific Committee for the Fourth AFIR International Colloquium in Orlando in April sponsored by the Casualty Actuarial Society, International Actuarial Association and Society of Actuaries. Elias chairs the Committee on Financial and Investment Management Special Guides of the Society of Actuaries.

Bruce Jones, recently elected to the Society of Actuaries' Education and Research Section Council, attended the Society of Actuaries Spring meeting in San Antonio, the Actuarial Research Conference hosted by Don Jones (an Iowa alumnus) at the University of Oregon-Corvallis, and a conference on Risk Theory at the Mathematisches Forschungsinstitut Oberwolfach in Germany.

Martin Appel continues his investigation of a certain random graph model in fruitful collaboration with Ralph Russo. Two articles are in the submission stage, with more to come. King Jang Yang (a research assistant on the project) is writing his Ph.D. dissertation on the subject. Martin presented some of the group's findings at a meeting of the Biometric Society in April of this year.

Jens Praestgaard was invited to organize the session on resampling methods at the IMS-Bernoulli Society meeting at Chapel-Hill, NC, June 20-25. He gave the local ASA chapter talk at the University of Wisconsin-Madison on May 4; was invited to participate in the International Workshop on Analysis of Censored Data in Poona, India, December 28-January 1, 1995, and gave talks at the University of Indiana, Bloomington, and the University of Missouri, Columbia. His paper, "Permutation and Bootstrap Kolmogorov-Smirnow tests for the Equality of Two Distributions" appeared in the *Scandinavian Journal of Statistics in* 1994.

Joseph Lang gave talks at the University of Arizona, Tucson; Meetings of the Biometric Society (ENAR), Cleveland; 9th Statistical Modeling Workshop, Exeter, England; Joint Statistical Meetings, Toronto, Ontario; and an optimization conference at the Faculty Research Seminar, Oakdale Campus, University of Iowa. Lang visited several European universities and plans to collaborate with statisticians at the University of Florence, Italy. His paper, which was written with Alan Agresti and entitled "Simultaneously Modeling Joint and Marginal Distributions of Multivariate Categorical Responses, " appeared this summer in the *Journal of the American Statistical Association--Theory and Methods.*

Jane Pendergast, who received her Ph.D. in Statistics at the University of Iowa (1980), is a Visiting Associate Professor from the University of Florida . She will be in our department for a year. Jane has received a National Science Foundation Visiting Professorships for Women Award, which has funded her visit. The funding supports both time for research and time to interact with students and faculty via courses, seminars and other informal channels. It is good to have Jane back.

Mervyn Silvapulle of Latrobe University in Australia will visit Iowa from November 1994 through May 1995, collaborating with researchers here on order restricted inference.

Kelley McKeating, Director of our newly formed Actuarial Consulting Center, reports a surprisingly successful first year of operation. Clients have ranged from lawyers to doctors to insurance companies. Three Actuarial Science students have gained valuable experience through these consulting projects. Wearing her Coordinator of Actuarial Science Programs hat, Kelley has concentrated on recruiting students to the department and employers to hire those students (for summer internships and/or permanent positions). Employers interested in receiving packages of student resumes should call Kelley at (319) 335-0821.

Our Statistical Consulting Center Director this year is Steve Hillis. He graduated with a Ph.D. in Statistics from Iowa in 1987. We are happy to have Steve's leadership in this important service.

Outstanding Speakers: During the 1993-94 academic year, our colloquium speakers included Lynne Seymour, University of Georgia; Stuart Klugman, Drake University; Thomas Moore, Grinnell College; Robert Lund, University of Georgia; Virginia Young, University of Wisconsin-Madison; Yazhen Wang, University of Missouri; A. R. Padmanabhan, Monash University; Larry Gray, University of Minnesota; Michael Newton, University of Wisconsin; Julian Faraway, University of Michigan; Jane Harvill, Texas A&M University; Osnat Stramer, Colorado State University; Keith Baggerly, Rice University; Jian Huang, University of Washington; Carey Priebe, George Mason University; Kai-Sheng Song, Purdue University; Werner Mueller, University of Economics, Vienna; Carolyn Dobler, Gustavus Adolphus College; and Howard Holden and Susan Cowles of the National Agricultural Statistics Service.

April was an outstanding month for our department. Bob Berin, President-Elect of the Society of Actuaries, spoke one evening in April. During the same month, our Allen T. Craig lecturer was Peter McCullagh of the University of Chicago. His talks were entitled, "The Role of Models in Applied Statistics," and "Approximation of High-Dimensional Integrals."

Student News: This fall in our undergraduate program, we have:

51 Pre-actuarial students:	15 Female,	36 Male
31 Actuarial Science students:	13 Female,	18 Male
15 Statistics students:	7 Female,	8 Male

We have 84 graduate majors:

Actuarial Science graduate majors:	27 students;	8 Female,	19 Male
Quality Management & Productivity:	9 students;	7 Female,	2 Male
Statistics graduate majors:	48 students;	20 Female,	28 Male
	(16 Ph.D.:	6 Female,	10 Male)

Degrees awarded from July of 1993 to August of 1994:

19 B.S. degrees	(17 in Actuarial Science, and 2 in Statistics)
38 M.S. degrees	(13 in Actuarial Science, 21 in Statistics and 4 in Quality Management and Productivity)
and 7 Ph.D.'s.	

The students who earned the Ph.D. degree and their present locations are:

Bhasker Battacharya	Southern Illinois University-Carbondale
Hammou El Barmi	University of Texas, Austin
Hsiao-Chuan Lu	Assistant Professor, Taiwan
Myongsik Oh	Iowa City (finishing research)
Mi-Young Shin	Korea
John Tsimikas	Postdoctorate @ Harvard School of Public Health
Huibin Yue	Syntex Research, Palo Alto, CA

At the Craig Lectures this year, several students received awards for achievements:

Dan Nettleton received the Henry L. Rietz Award as Outstanding Newly Qualified Ph.D. Student.

Gavin Cross and Michelle Larson received Allen T. Craig Awards for being Outstanding Teaching Assistants.

Jui-Chuan Fan, Dwight Soethout, and Serena Tiong received Lloyd A. Knowler Awards for being Outstanding Actuarial Science Students.

We gave $9,738 in Allen T. Craig scholarships this past year. We also gave $10,742 in scholarships to Actuarial Science students, and paid $3,592 for exam reimbursements to students who passed actuarial exams. As always we are very grateful for your generous donations which make these awards possible.

WARTBURG COLLEGE - Lynn J. Olson reporting

Augie Waltmann was a participant in the Summer 1994 POEMT (Preparation of Elementary School Teachers) Institute hosted by Florida International University on July 24 to August 6. This was the second summer institute he participated in as part of his two-year

involvement in this project. The project was funded by NSF.

Glenn Fenneman spent four weeks this past summer teaching in the Republic of China.

Robin Pennington was one of 66 Project NExT Fellows (four from the Iowa Section). She attended the first workshop of the New EXperiences in Teaching Project this past summer just prior to the MathFest.

Bill Waltmann was one of twenty-six college faculty who participated in the Technology Strategies Workshop which was held at Ohio State University June 20-July 1 and was sponsored by NSF. This workshop provided an introduction to the uses of technology in undergraduate mathematics instruction in areas ranging from precalculus through calculus to advanced topics.

Wilton Wikstrom spent the summer at Ames Labs doing research in parallel processing.

Calculus Reform: We continue to integrate the use of Maple into the calculus courses and then into upper level courses such as linear algebra, abstract algebra, discrete structures, math modeling. Bill Waltmann has been very active in leading the effort in the calculus classes. In the 1993-94 graduating class there were 15 seniors with majors in the department.

Mark Your Calendars Now!

Mathematics Awareness Week 1995

"Mathematics and Symmetry"

April 23-29, 1995

Every year, Mathematics Awareness Week celebrates the richness and relevance of mathematics and provides an excellent opportunity to convey this message through local events. During a week-long celebration from Sunday, April 23 - Saturday, April 29, 1995, the festivities will highlight MATHEMATICS AND SYMMETRY. Mark your calendars now and plan to observe Mathematics Awareness Week in your area, school, or organization. Look for further information from the Joint Policy Board for Mathematics, national sponsor of Mathematics Awareness Week.

MATHEMATICS AWARENESS WEEK VISUALS

available from the: Joint Policy Board for Mathematics
1529 Eighteenth Street, NW
Washington, DC 20036
202/234-9570

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"Mathematics & Medicine" Postcards–1994 MAW (set of 10, 5 each of 2 designs)	$5.00
"Mathematics & Manufacturing" Poster--1993 MAW	$5.00
"Mathematics & Manufacturing" Postcards--1993 MAW (set of 3, 1 each of 3 designs)	$1.50
"Mathematics & the Environment" Poster--1992 MAW	$5.00
"Mathematics & the Environment: Postcards-1992 MAW (set of 4, 1 design)	$1.00
"Mathematics: IT'S Fundamental" Poster--1991 MAW	$4.00
"Mathematics Applications Postcards--1991 MAW (set of 4, 1 each of 4 designs)	$2.00
1 EACH OF 4 COLOR POSTERS (a $20 value)	$14.00

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