Fall 2001

Mathematics News

UNIVERSITY OF IDAHO

Jennifer Boisen, Monte Boisen, and Helen Boisen

INSIDE THIS ISSUE:

- *Actuarial Science* – pg. 2
- *Student News, Putnam Results, Deans List* – pg. 3
- *Recent Graduates* – pg. 4
- *Past Graduates and New Graduate Students* – pg.5
- *News of Faculty and Staff* – pg. 6
- *Web Site Address* – pg. 7
- *Math Puzzlers* – pg. 8

Math Club

Math Majors met in May and decided to form a Math Club. Garrett Reynolds, Matt Labrum, Dan Brodock, and Melissa Hodge were elected officers. Several activities are planned for the Fall. If you have any suggestions or are willing to help, be sure to contact one of the officers.

Monte Boisen New Mathematics Chair

Monte Boisen comes to the University of Idaho as professor and chair of mathematics after a distinguished career as a teacher, researcher, and faculty leader at Virginia Tech. Monte received his Ph.D. in mathematics in 1970 at the University of Nebraska specializing in commutative algebra. In 1975 he began collaboration with Gerald V. Gibbs, a crystallographer. Over the years this fruitful collaboration resulted in research grants totaling $1.2 million and over fifty research papers in mathematical crystallography. He has given numerous talks on his research, directed four doctoral dissertations, and had visiting positions at the University of California, Berkeley and in Japan.

Monte will emphasize the value of teaching as Chair of Mathematics. He established himself as one of the top teachers at Virginia Tech, an institution renowned for teaching excellence. A partial list of his accomplishments includes four Certificates of Teaching Excellence, awarded to the top 1% of teachers each year; the 1989 Wine Award for Excellence in Teaching, awarded to three teachers university-wide each year; the 1994 Mathematics Department Teacher of the year; the 1998 College of Arts and Sciences Diversity award; and the 1999 University Xcalibre Award for the development of the Mathematics Emporium. In 1996-97 he chaired the university's prestigious Academy of Teaching Excellence. His passion for teaching will translate into a genuine concern for our undergraduate and graduate mathematics programs.

Monte is eminently qualified to develop our Polya Mathematics Center into an asset that supports students in learning and practicing mathematics

Continued on page 2

Continued from page 1

throughout their years of study at Idaho. He transformed the Mathematics Emporium at Virginia Tech from a gigantic room with 500 computers into a place where students are actively engaged in taking responsibility for their own learning. He took on the job of course leader for the beginning math course and developed a learning environment that places the student in the center, not machines nor texts nor instructors.

Monte will work to make the university a more inviting place for women and minorities, both as students and faculty. At Virginia Tech he has been President of the Faculty Senate and Chair of the Academy of Teaching Excellence. He has been on practically every teaching committee. He has been on selection committees for the Wine Award, Goldwater Award, President's Scholarship awards, and State Council of Higher Education in Virginia awards. He is on the steering committee of the statewide Quality of Education for Minorities initiative on increasing minority student interest in mathematics and science, and is departmental coordinator for minority affairs. In 1998 he received the College of Arts and Sciences Diversity Award. He has stated many times that the best thing about receiving an award is that it opens up new opportunities to serve. *By James Calvert*

Five Chairs.
These five mathematicians have served as chairs in the last 23 years. From left to right; the new chair Monte Boisen (the tenth person to serve as chair of Mathematics), James Calvert 1982-1990 and 1998-2001, Clancy Potratz 1990-1994, Erol Barbut 1994-1998, Larry Bobisud 1978-1982

ACTUARIAL NEWS

WHAT DOES AN ACTUARY DO?
In October Tom Wortman, an actuary from Regence Blue Shield of Idaho, will speak on campus about the duties and responsibilities of an actuary. Look for the announcement.

HELP FOR THE TESTS
Among all the other things, students seeking to become actuaries need to be concerned about the Actuarial Exams. These are very important. To become an Associate of the Society of Actuaries, you need to pass six of their exams. This is not easy. Fewer than 50% pass an exam the first time they take it. Fulfilling the requirement for the actuarial science option at UI covers most of the content of Exams 1 and 2, and provides background knowledge for the content of the remaining exams. The questions on the exams are not the usual text book questions. They frequently apply mathematics to risk problems and also ask you to draw conclusions. Students need intense preparation. We offer two seminars to help you prepare for Exam 1. In the fall we offer Math 255 to review Calculus and in the Spring we offer Math 415 to review Mathematical Probability. Both semesters we review questions taken from old exams. We also emphasize that the student search for the answer. This is important because when you are studying for the future exams while on the job you will be studying on your own. It is very worthwhile to develop those skills now.

We also will arrange assistance in studying for Exam II, (Exam II covers Economics, Finance and the Theory of Interest). Review material from previous exams is available. See Ralph Neuhaus in Brink 302 to arrange for assistance.

Exams 3 through 6 are usually taken after graduation while you are employed. Firms normally allow you release time to study for an exam. The required courses for the Actuarial Science option are background knowledge for the content of these exams. Exams 1 and 2 can be taken in Moscow on November 7 and 8, or on May 22 and 23. Applications for the November exams must be received before September 24, 2001 for the November Exam and before April 1 for the May Exam. See Ralph Neuhaus in Brink 302 for application blanks.

Dean's List

Each semester the Dean of the College of Letters and Science lists those students who have received a grade point average of 3.3 or better and have taken at least 14 credits for a letter grade. The Mathematics majors on the Fall 2001 Dean's List are:

CRAIG BEISEL
MATTHEW BENKE
ROBERT BIEZE
JAYNE BIRD
AARON BLUE
JUSTIN BOGGS
DANIEL BRODOCK
BRIAN DORGAN
FORREST FRENCH
NICOLAS HAYES
TRICIA HAYNES
NATHANIEL HINDS
MELLISSA HODGE
JESSE HUSO
JAR SHANG JONG
MATTHEW LABRUM
ERIC MACK
JAMI MACKI
ERIK MENTZE
JARED MILLER
SETH MINER
JOLENE MONSON
PATRICK O'CONNELL
MATTHEW PETERSEN
SARAH POTRATZ
ERIC SAUERACKER
ROY TROMBLE
MICHELE VALIQUETTE
BRANDY WIEGERS

Putnam Results

MUEEN NAWAZ did very well in the 2000 Putnam Competition, sponsored by the Mathematics Association of America. He placed in the top 20% of the 2,900 undergraduate mathematics students participating nationwide. ROY TROMBLE, CRAIG BEISEL, MATT BENKE AND ERIC ANDERSON placed in the top 50%.

The University of Idaho team ranked 120th out of 434 competing colleges. The best undergraduate mathematics students from more than 400 Colleges and Universities in the United States and Canada participated in this year's competition.

The questions are always difficult. Students who have had a variety of mathematics courses and enjoy challenging problems are invited to participate. A seminar in preparation for the exam will be offered this semester. See Ralph Neuhaus in room 302 of Brink Hall for details.

Congratulations on a Job Well Done!

Mark Nielson Visits High Schools

Last year the Math Department initiated a program of visits to area high school classrooms. Mark Nielsen visited several schools in the region (Lake City High, Genesee High, Orofino High, Timberline High, Priest River High, Prairie High, and Kendrick High). The presentation at each school focuses on what to expect from college mathematics and how to best prepare for college math, and concludes with a hands-on mathematical activity. Schools interested in participating in the program next year can contact Professor Nielsen at markn@uidaho.edu.

Student News

BRANDY WEIGERS took part in a Research Experience for Undergraduates this summer. She studied biostatistics and epidemiology at Ohio State University. She will also be a Barry Goldwater Scholarship winner this year. This NSF program is the premier undergraduate award in the sciences. Three of this years 302 Goldwater Scholarship winners are UI students.

ROY TROMBLE and CHRIS HIATT were given the Outstanding Seniors in Mathematics Award for 2001. This award is presented annually to the student or students who have shown exceptional mathematical talent.

DANHONG ZHANG, TIM SPRANO, RYAN MULLEN, BOB WILLIAMSON and A.C. BINNER were given Outstanding Teaching Awards by the department for excellence in their teaching.

Recent Graduates

ARTHUR "A.C." BINNER graduated in May with an M.S. in Mathematics. He will work for Milliman USA, an actuarial consulting firm in Seattle.

BRYAN FARRENS graduated in December with a M.S. in Mathematics.

KAI MIDDLETON graduated in May with a M.S. in Mathematics. He is working in the computer industry in Silicon Valley.

RYAN MULLEN graduated in May with a M.S. in Mathematics. He will be a Ph.D. candidate at the University of Missouri in Columbia, Missouri.

JOHN SPENCE graduated in May with a M.S. in Mathematics. He is a Lecturer of Mathematics at Weber State University in Odgen, Utah.

MARK CUMMOCK graduated in December with a M.A.T. in Mathematics. He is a technical support specialist for Leica Geosystems in Lawrenceville, Georgia.

CARIE SHUGERT graduated in December with an M.A.T. in Mathematics. She is a teacher at Priest River High School.

CRAIG BEISEL graduated in May with a B.S. in Mathematics. He is working in Tucson, Arizona, for the Fontana Group as a data analyst.

ROBERT BIEZE graduated in May with a B.S. in Applied Mathematics. He will continue at the UI to finish his Computer Science degree.

KEN BRANDT graduated magna cum laude with a B.S. in Applied Mathematics. He received the Navel Submariner League Outstanding Achievement Award. He was commissioned an Ensign in the U.S. Navy and will report to the Nuclear Power School of the U.S.N.

RONALD CLOUGH graduated in December with a B.S. in Applied Mathematics. He was commissioned a Second Lieutenant in the US Air Force and is stationed at the Miniot Air Base as a Space and Missiles Operator.

PETER DAVIS graduated in May with a B.S. in Applied Mathematics.

STEPHAN DeHASS graduated in December with a B.S. in Applied Mathematics.

MATTHEW DUNMORE graduated in December with a B.S. in Applied Mathematics. He is working for the Spokane office of Guardian Life Insurance Company in the eligibility department.

RIC GIAMPIETRI graduated in December with a B.S. in Mathematics.

CHRIS HIATT graduated summa cum laude in May with a B.S. in Mathematics. He will attend graduate school in mathematics at the University of Southern California.

WILL HOSTETTER graduated in May with a B.S. in Mathematics and Physics.

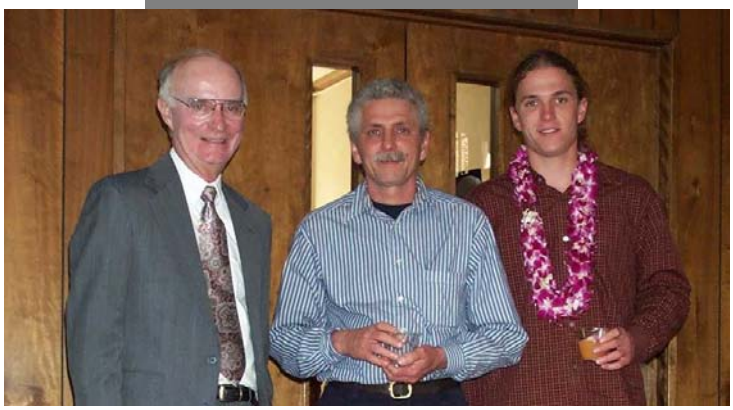
MARLENE JERWERS graduated in May with a B.S. in Applied Mathematics. She also received a B.S. in Business. She will work for KBASE Technologies doing functional and technical consulting on Oracle software.

JAMES OLIVER graduated in December with a B.S. in Applied Mathematics. He was commissioned an Ensign in the US Navy and is in the Flight Training Program.

ROY TROMBLE graduated summa cum laude in May with a B.S. in Mathematics. The University Honors Program presented him with a Honors Certificate. He also received a B.S. in Computer Science. He is working for a computer firm in Moscow.

Some of the 2001 Graduates

Father and Son



Paul Smith graduated from UI in 1976 with an M.S. in Mathematics. His son Nick Hayes, graduated this May with a B.S. in Mathematics. Ralph Neuhaus was the adviser to both.

Past Graduates

WILLIAM FLETCHER received the 2000 North Carolina Award in Science. This is the highest award the State of North Carolina can give. Fletcher received his Ph.D. degree in Mathematics from UI in 1966. He has been Professor of Mathematics and Chair of the Department at North Carolina Central University since 1972. In presenting the award to Professor Fletcher Governor Jim Hunt cited him for his achievement in the field of abstract algebra for encouraging women and minorities to study mathematics, and for showing how computers and applied math can solve problems.

RICH DREIER graduated in May with an M.S. in Applied Mathematics - Operation Research from Northern Illinois University in Dekalb, Illinois. He is now a Ph. D. candidate in Mathematics there. He graduated from UI in 1990 with a B.S. in Applied Mathematics.

GWEN KELLY was named Idaho's Teacher of the Year, by the National Teacher Training Institute. She was honored for her use of video and other technological tools in the classroom. She earned her M.S. in Mathematics from the UI in 1972. This August she retired from UI as Professor of Mathematics Education. She has worked closely with the Mathematics Department. We will miss her.

PAUL STODDARD is teaching high school mathematics in Mount Vernon, Washington. He graduated from UI in 1993 with a B.S. in Mathematics.

LEONORA PHILLIPS is teaching high school mathematics in Lewiston, Idaho. She graduated from UI in 1996 with a B.S. in Mathematics.

TOM WORTMAN has returned to work for Regence Blue Shield of Idaho. He has been working for Milliman Robertson in Seattle. He graduated from UI in 1989 with a B.S. in Applied Mathematics and became an Associate of the Society of Actuaries in 1993.

LINN HOWER works for Micron Technology in Boise, Idaho. He graduated from UI in 1979 with a B.S. in Mathematics.

TRAVIS WARWICK is the Librarian for the Mathematics Library at the University of Wisconsin-Madison. He graduated from UI in 1997 with an M.S. in Mathematics.

JASON MINER is teaching at Santa Barbara City College. He graduated from UI with an M.S. in Mathematics in 1996.

JONATHAN PREWETT is a lecturer at the University of Wyoming. He received his M.S. in Mathematics from UI in 1998.

LEWIS MICHELSON is the new Information Technology administrator for the Recreation Center at UI. He graduated from UI in 1995 with a B.S. in Applied Mathematics

New Graduate Students

INNA POLITAYKO received a bachelors degree from Odessa State University, Ukraine in 2000. She will be a candidate for an M.S. and a Teaching Assistant in Mathematics.

ROMAN MAKORDEY earned a bachelors degree in Mathematics from Odessa State University, Ukraine in 2000. He will be a candidate for an M.S. and a Teaching Assistant in Mathematics.

TOM COPLEY earned a bachelors degree in Mathematics from the University of Kentucky in 2000. He will be a candidate for an M.S. and a Teaching Assistant in Mathematics.

PAUL HOWARD earned a bachelors degree in mathematics from the University of Idaho in 1996. He was a lecturer in Mathematics at UI last year. He will be a candidate for an M.S. and a Teaching Assistant in Mathematics.

News of Faculty and Staff

PAUL JOYCE was promoted to Professor by the Board of Regents in June. He received his Ph.D. from the University of Utah in 1988 and had been a Visiting Professor at the University of Southern California before coming to UI in 1991 as an Assistant Professor. He was promoted to Associate Professor in 1994.

In July EROL BARBUT was invited to give a talk on "Score Sequences for Hypertournaments" at the DIMACS Connect Institute on the Rutgers University Campus.

This summer FRANK GAO participated in the 2001 Summer Internship Program in Probability and Stochastic Processes at the University of Wisconsin-Madison.

HUNTER SNEVILY and HONG WANG attended the 32nd annual International Conference on Combinatorics Graph Theory and Computing at Baton Rouge in February.

PAUL JOYCE gave an invited talk at the Mathematical and Statistical Aspect of Molecular Biology Conference at the Newton Institute, Cambridge University in March.

PAUL JOYCE and STEVE KRONE were invited to collaborate on Coalescent Theory with Professor Magnes Nordborg at the University of Southern California in June and July.

In January MARK NIELSEN gave the "Kieval Lecture" at Southern Oregon University in Ashland, Oregon. He also received the Excellence in Teaching Award from the UI and WSU Navy ROTC Program.

Four members of the Math department were given awards by Student Disability Services. JAMES CALVERT, ALAN HAIN, JUDI TERRIO, and JEAN SAWYER were honored for excellence in providing educational material in a manner accessible to all students. They were nominated by students with disabilities.

MOMO DAHLE has resigned as receptionist for the Math-Statistics Assistance Center. She and her family have moved to Livermore, California.

For the third year ARIE BIALOSTOCKI conducted a Research Experience for Undergraduates. This NSF funded program brings 5 bright undergraduates mathematics students from around the country to the UI campus for 8 weeks to explore new areas of mathematics and to discover new relationships. On the last day each student presented his or her results to the rest of the students at a mini-conference.

JACLYN CLARK joined us in August as the new Administrative Assistant. She comes to us from Virginia where she attended Virginia Tech and earned her Bachelor's Degree in Psychology.

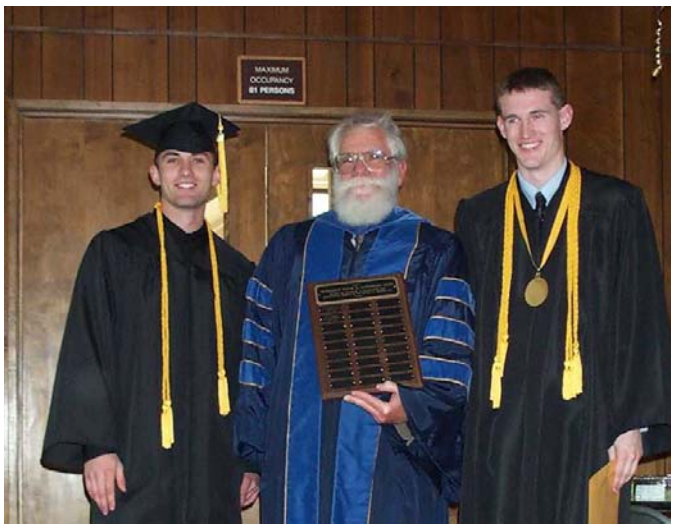
HEATHER HOWELL joined us in August as a lecturer. She earned her B.A. degree in Liberal Arts from St. Johns College in Santa Fe, New Mexico and M.S. in Math and Math Ed. from Virginia Tech. Heather brings a wealth of experience to UI based on her extensive involvement in the Math Emporium at Virginia Tech.

RODOLFO LONG joined us in August as a Research Associate. He earned a B.A. degree in English and French and a M.S. degree in Instructional Technology with a Specialization in Human-Computer Interaction all from Virginia Tech.

HEATHER FRANCO joined us in August as the new Administrative Assistant for the Polya Math Center. She comes to us from Seattle where she attended the University of Washington.

Math puzzler Solution # 1

Four will work. Nerdles could give Hickmor (1, 0, 0, 0) then (0, 1, 0, 0), (0, 0, 1, 0) and (0, 0, 0, 1). Two will also work. Nerdles first gives (1, 1, 1, 1) and Hickmor responds with $b=x_1+x_2+x_3+x_4$. Then Nerdles gives (1, b, b^2, b^3) and Hickmor responds with $N=x_1 1+x_2 b+x_3 b^2+x_4 b^3$. Nerdles now needs only to write the number N in the base b. It doesn't appear that one round is sufficient but we do not have an argument to prove it.



Chris Hiatt and Roy Tromble receiving their Outstanding Seniors in Mathematics Award from Professor Calvert.

CHECK OUT OUR WEB SITE:

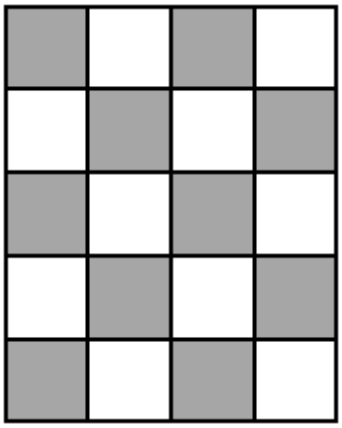
www.uidaho.edu/LS/Math/

You'll find:

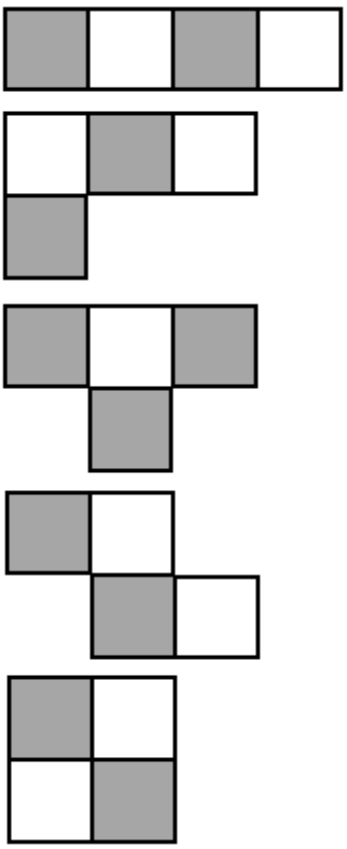
- information on the undergraduate program
- information on the graduate program
- information on teaching assistantships
- time schedule of classes.
- a two year schedule of courses beyond Calculus
- course handouts
- information on the people
- information on the Polya Math Center

Math puzzler Solution # 2

There is no solution!



Assume that you can form a 4×5 rectangle. Make the 4×5 rectangle into a black and white checker board. Similarly color the squares in the tetranimoes. Note that no matter how you do it, each piece but the third one must be colored half black and half white. The third one however must have 3 of one color and one of the other color. Hence the 5 tetranimoes have 11 of one color and 9 of the other. The 4×5 rectangle has 10 of each color.



University of Idaho
Department of Mathematics
300 Brink Hall
PO Box 441103
Moscow, Id 83844-1103

Math Puzzlers

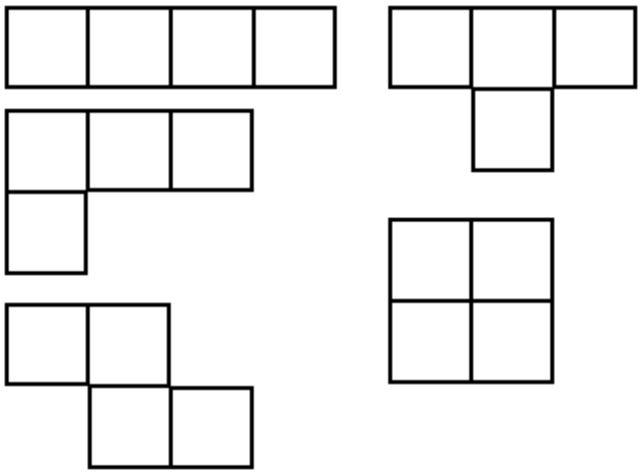
#1

Hickmor and Nerdles play a number guessing game. Hickmor chooses four positive integers x_1, x_2, x_3, and x_4. Nerdles wants to determine the four integers. In each round Nerdles gives Hickmor four nonnegative integers a_1, a_2, a_3, and a_4, and Hickmor must give Nerdles the quantity $a_1x_1+a_2x_2+a_3x_3+a_4x_4$. What is the fewest number of rounds necessary for Nerdles to determine Hickmor's four integers?

See page 6 for solution.

#2

Take four equal sized squares and adjoin them. Then, ignoring rotations and flipping over, there are five possible tetranimoes. Can these five tetranimoes be put together to form a 4×5 rectangle?



See page 7 for solution.