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Open Letter Objects to Expert Panel Findings

In an open letter to Secretary of Education Richard Riley, prominent mathematicians objected to the findings (reported last month in FOCUS) of the Expert Panel which identified a number of pre-college mathematics curricula as "exemplary" or "promising." The letter, which was published as a full-page advertisement in the *Washington Post*, called on Secretary Riley to withdraw the entire list. It was signed by David Klein of California State University, Northridge, Richard Askey of the University of Wisconsin at Madison, R. James Milgram of Stanford University, Hung-Hsi Wu of the University of California, Berkeley, Martin Scharleman of the University of California, Santa Barbara, and Betty Tsand of the National Superconducting Cyclotron Laboratory. The letter carried endorsements from many other mathematicians, including members of the MAA.

The letter noted that no "active research mathematicians" were members of the Expert Panel, and argued that "it is not likely that the mainstream views of practicing mathematicians and scientists were shared by those who designed the criteria for the selection of 'exemplary' and 'promising' programs." After citing critical assessments of some of the programs selected by the panel, the letter argued that the existence of serious criticisms from credible scholars means that "it is premature for the United States Government to recommend these ten mathematics programs to schools throughout the nation." On this basis, the letter asked Secretary Riley to withdraw the report and suggested that schools "not take the words exemplary and promising in their dictionary meanings, and exercise caution in choosing mathematics programs." The full text of the open letter can be found at http://www.mathematicallycorrect.com, together with links to various press reports on the letter and its aftermath.

Open Letter continued on page 7

MAA Strongly Supports Federal Funding for Intervention Projects

In 1990, the MAA and its Strengthening Underrepresented Minority Mathematics Achievement (SUMMA) Program began concerted efforts to improve the mathematics education of minorities and increase the representation of minorities in the fields of mathematics, science and engineering. However, external support for pre-college intervention projects has become scarcer within the last few years with the discontinuance of substantial federal funding from such agencies as the National Science Foundation and the Department of Energy.

As a result, the MAA has begun to encourage mathematics departments, not just individual faculty, to work in this arena. Institutional resources should be brought to bear on encouraging pre-college students to take more challenging mathematics and science courses in preparation for the mathematics-based careers that will be at the heart of the information revolution of the next century.

Intervention Projects continued on page 3

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CRAFTY Discusses the Curriculum with Client Disciplines

The MAA Committee on the Undergraduate Program in Mathematics (CUPM) has undertaken, as reported in the November issue of FOCUS, a Curriculum Initiative that will produce a revised set of curriculum recommendations for undergraduate programs in mathematics. As part of this process, the CUPM Subcommittee on Calculus Reform and the First Two Years (CRAFTY) has been running a series of interdisciplinary workshops in which mathematicians meet with scholars from mathematics-intensive disciplines to discuss expectations for the mathematical preparation of students in the first two years of college. The first meeting, held in October at Bowdoin College, brought together physicists, mathematicians, and computer scientists to talk about what and how we should be teaching undergraduates. (An article about the meeting appeared in the *Christian Science Monitor*. See http://csmonitor.com/durable/1999/11/09/fp13s1-csm.shtml for the web version.) The second meeting, held at the U. S. Military Academy at West Point, focused on interactions between mathematics, engineering, and physics. A third conference is planned to happen this spring at Virginia Commonwealth University, and will focus on biology and the medical sciences. Other conferences are in the works for the following months and will be announced when funding is confirmed.

All of the workshops are being funded by the local institutions, and involve 20 to 25 participants invited from around the country. A report will be written on each of the conferences, and the reports will be widely distributed for use in the discussions of the mathematics curriculum. William Barker of Bowdoin College is the chair of CRAFTY; he can be reached at barker@bowdoin.edu.

CUPM is very interested in comments and contributions from the mathematics community on the curriculum initiative. To contact CUPM, send email to cupm-curric@maa.org or write to the chair of CUPM: Tom Berger, Department of Mathematics, Colby College, Waterville, ME 04901. ■

MAA Creates Task Force on Articulation

MAA president Tom Banchoff recently appointed a Task Force on Articulation, whose job will be "to prepare a report for the Council on Education and the Executive and Finance Committees indicating the nature and structure of the involvement of the MAA in issues relating to articulation from high school to college and from two-year to four-year colleges." The task force, chaired by Bernie Madison of the University of Arkansas, is expected to be part of an effort, led by the Mathematical Sciences Education Board, to involve several professional associations in a discussion of the articulation between secondary and post-secondary mathematics education. As indicated in the charge above, the MAA task force will also consider the transition between two-year and four-year colleges. Task force chair Bernie Madison can be reached by email at bmadison@comp.uark.edu . ■

FOCUS Deadlines

	March	April	May/June
Editorial Copy	January 19	February 15	March 22
Display Ads	February 4	February 22	April 4
Employment Ads	February 2	February 18	March 30

Intervention Projects continued from page 1

Of course, intervention at the pre-college level is not the whole solution, and the MAA is also developing REU (Research Experiences for Undergraduates) programs that specifically target students who are members of minority groups that are under-represented in the mathematics community. These programs will work towards expanding the number of minority students who go on to advanced degrees in the mathematical sciences.

In late 1998, Congress took a step in the right direction by establishing the Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology Development (known as CAWMSET). The goal of the Commission is to research and recommend ways to improve the recruitment, retention, and representation of women, minorities, and persons with disabilities in education and employment in the areas of science, engineering and technology.

Recently David Scott of the University of Puget Sound and Robert Megginson of the University of Michigan addressed the Commission on behalf of the MAA. Scott urged CAWMSET to formally recognize the effectiveness of college based intervention programs, such as those associated with the SUMMA program of the MAA, and to recommend that more federal funds be available for starting and supporting such programs. Megginson's presentation, made in response to a call for institutions to present their "best practices" in this area, dealt with the planned REU programs targeting minority students.

In addition to being a former co-chair of the Committee for Minority Participation in Mathematics of the MAA, the committee with oversight of SUMMA, Scott directs the Academic Challenge Program, an intervention program at the University of Puget Sound. From these vantage points he has seen the effectiveness of intervention projects.

"One reason they make a difference," he told the Commission, is that students go on to careers in mathematics, science, computer science and engineering." Another is that these programs build bridges between colleges and public schools. Many of these programs employ public school teachers as well as college faculty, and the resulting dialogue promotes understanding of the needs and expectations of the two institutions. Scott noted that the MAA Board of Governors has gone on record with its strong support for intervention projects.

Megginson spoke about the plans to create REU programs that target under-represented minorities. He explained that the plan is modeled on a successful program already being conducted by the Society for Advancement of Chicanos and Native Americans in Science in collaboration with the University of Puerto Rico at Humacao. Students attending the program would begin by participating in a workshop on a particular mathematical topic, and then proceed to an open-ended individual research project based on the material learned at the workshop. Students would later be given opportunities to attend professional conferences and present their research results.

The most critical factor in implementing the REU program is, of course, funding. Also critical is the aggressive recruiting of participants and staff. Megginson's testimony emphasizes the benefits of the program, which allows minority students to deepen their experience of mathematics in close contact with other minority students and then offers the students the opportunity to bring their experience into the community as a whole by participating in a professional meeting.

Additional information on CAWMSET is available at the Commission's web page at http://www.nsf.gov/od/cawmset; the full text of Scott's testimony is online at http://www.maa.org/features/cawmset1.html; the full text of Megginson's testimony is online at http://www.maa.org/features/cawmset2.html. For further information on SUMMA, contact Bill Hawkins at MAA Headquarters or by email at bhawkins@maa.org.

Teaching and Learning on MAA Online

The Teaching and Learning section of MAA Online can be found at http://www.maa.org/t_and_l/index.html. Two of its components are the Innovative Teaching Exchange, edited by Bonnie Gold, which gives teachers an opportunity to share their new ideas, and the Research Sampler, written by Annie and John Selden, which discusses recent research in mathematics education.

Research Sampler articles:

Of What Does Mathematical Knowledge Consist?
Should Mathematicians and Mathematics Educators be Listening to Cognitive Psychologists?
Preservice Teachers' Conceptions of Mathematics and How to Teach It
Expert Problem Solvers
The Role of Examples in Learning Mathematics.

Innovative Teaching Exchange articles:

Math Class—Have You Seen the Preview?, by H. Louise Amick
The Trial of the Semester, by Joel S. Foisy
A collection of articles on getting students to read mathematics
In Search of the Elusive Matrix, by David E. Meel
Volumes and History: A Calculus Project Involving Reading an Original Source, by Elyn Rykken and Jody Sorensen. ■

Year 2000 Grants For Women and Mathematics Projects

The MAA plans to award grants for projects designed to encourage college and university women or high school and middle school girls to study mathematics. The Tensor Foundation, working through the MAA, is soliciting college, university and secondary mathematics faculty (in conjunction with college or university faculty) and their departments and institutions to submit proposals. Projects may replicate existing successful projects, adapt components of such projects, or be innovative. For more information on these grants see MAA Online: http://www.maa.org/projects/solic_99.html. ■

MAA and FOCUS Survive Y2K

by Underwood Dudley

Since you are reading this, it is very likely that the world, or even the world as we know it, did not end on January 1, 2000. That, numerologically, is as it should be.

When we look in *Les Nombres Remarquables* by Francois Le Lionnais (Hermann, 1983), we see a vast desert between 1729, the smallest integer that can be written as a sum of two cubes in two different ways ($1729 = 12^3 + 1^3 = 10^3 + 9^3$) and 2047, the smallest composite Mersenne number ($2047 = 2^{11} - 1 = 23 \cdot 89$). Nothing special about 2000!

The big fuss about 2000 arises, of course, because 2000 is so *round*. It is indeed round, but there have been recent years that have been rounder. We recognize 2000 as round because of the odd number of fingers we have on our hands. If we had only four fingers per hand, then we might be disturbed as 2048 approaches, since $2048_{10} = 4000_8$, a very round number in base 8. This year, $2000_{10} = 3720_8$, wouldn't disturb anyone who counted by eights.

A good measure of the roundness of an integer is the number of its divisors, scaled to reflect its size: let us define the *roundness* of n to be $R(n) = d(n)/\ln n$.

Then $R(2000) = R(2^4 \cdot 5^3) = 5 \cdot 4 / \ln(2000) = 2.63$. But roundness is not to be feared: 1944, round in base 6 ($1944_{10} = 13000_6$), is even rounder than 2000, because $R(2^3 \cdot 3^5) = 24/\ln(1944) = 3.16$, and the world didn't come close to ending then. In fact, it was a good year, when the end of the Second World War came into sight. Another year even rounder than 2000, 1960, which has roundness 3.16, was a good one as well. The roundness of 2016 is a towering 4.73, but we should not be afraid of it.

Another mathematical and numerological property of integers is their abundance or deficiency. A number is abundant if it is less than the sum of its proper divisors, as $24 < 1 + 2 + 3 + 4 + 6 + 12 = 28$, and deficient if it is greater, as $25 > 1 + 5$. The maximally deficient integers are the primes, because the sum of their proper divisors never exceeds 1. Did the primeness of 1913 cause the First World War? Did the Great Depression occur because of the double-barreled deficiency of the primes 1931 and 1933? Did the primes 1949 and 1951 bring on the Korean War? If so, we should watch out, since 1993, 1997, 1999, and 2003 are all prime and it is not often that we get four primes in eleven years. However, the effect of deficient years is not uniform. The 1870s was as deficient as a decade can be, with 1871, 1873, 1877, and 1879 all being prime, but, besides the Panic of 1873, nothing terrible seems to have happened then, at least nothing as dramatic as the end of the world. The next all-prime decade is the 2080s, but that may pass as uneventfully as did the last one before the 1870s, when 1481, 1483, 1487, and 1489 did their best to impoverish their time.

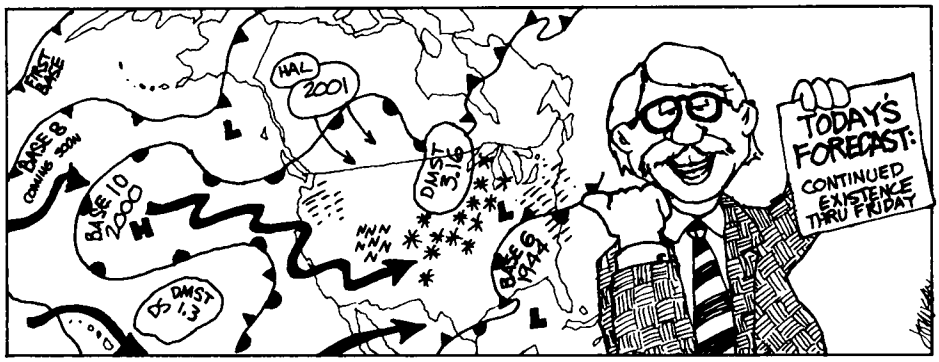


Illustration by John Johnson

Let us look to see what π has to say about 2000. After all, π knows all: its digits, coded to represent letters, contain all the plays of Shakespeare and all the books in all the libraries of the world (unless π is not a normal number, but that has probability zero). It must be significant that the first appearance of $n000$ in π is 2000, at the 600th decimal place. We would not expect that until around place 5000, and the probability that 2000 should appear first is only 1/9. Also, only 162 places further along in B comes the sequence of digits 999999 that would convince any physicist that π was rational, thus implying that 2000 is the end of something. But when we look for confirmation in e, which also knows everything with probability 1, containing as it does infinitely many proofs of the Riemann Hypothesis (though almost all of them are incorrect), we do not find it, since 3000 is the first millennium year in e, starting at the 327th place. Probably no conclusions can be drawn, especially since the first 8000 or so places of $\sqrt{2}$ contain *no* millennium years.

Further evidence that 2000 is not the end comes from the continued fraction expansion of $\sqrt{2000}$, whose partial quotients begin [44; 1, 2, 1, 1, 2, 3, 5, 3, 2, 1, 1, 2, 1, 88, 1, 2, 1, 1, 2, 3, 5, 3, 2, 1, 1, 2, 1] and then repeat. Nothing but Fibonacci numbers! Up to experimental error, that is, and we all know that the Fibonacci sequence goes on forever.

However, we may not be out of the woods. David Singmaster, Professor of Mathematics at the South Bank University (London), has noticed that the 666th triangular number is $222,111 = 111 \cdot 2001$, "explaining the conscious or unconscious motive behind the Clarke/Kubrick film. This clearly informs us that the next millennium starts in 2001, not 2000 as popular error has asserted. Further it is most probable that the end of the world will occur in 2001." He also notes that the 222,111st triangular number, 24,666,759,216, also contains the sinister 666, but that the 24666759216th triangular number "has no obvious numerological properties."

Perhaps the best course is for us all to renew our memberships in the MAA, so that we will be able to read about what has happened in the January 2001 issue of FOCUS. ■

Underwood Dudley is the editor of the ***College Mathematics Journal*** *and the author of the prize-winning book* ***Numerology or, What Pythagoras Wrought****, published by the MAA.*

A Different Pencil:

What is so good about them, anyway . . .

by Nora Franzova

When I typed up my first calculus exam (not so long ago), it was right on the front in bold capital letters: NO CALCULATORS ALLOWED! I believed in it and my colleagues did too.

I went through my school years exploring mathematics more deeply with each passing year, and the only tools I needed were a good pencil and a clean sheet of paper. (I did not even insist on completely clean paper, for the sake of the forests). And up until today this has been the most enjoyable way for me to do mathematics. It gives me a feeling of power and accomplishment, a perfect view of an idea being born.

During those years when I had the time of my life with my pencil and my paper and all those math problems, I watched my friends who did not share my enthusiasm for mathematics branch off to different fields of education. I chose math and made new friends, people who also chose math, and we used pencils and paper, blackboards and whiteboards and supported each other in saying NO to calculators. It worked for me.

But (and there is always a "but") now I am a teacher, trying to convince my students that what has worked for me, will work for them. I guess I forgot all those friends for whom math class was just a dreadful, uninspiring, boring time. I forgot that I never managed to convince them to share my enthusiasm for the subject. Now, as a teacher, I am trying harder then ever to share with my students some of my math enthusiasm. But I know in many cases it is not going to work.

And maybe the reason is that what has worked for me does not have to work for everybody. And maybe I should try some new ways to present the mathematical treasures I like so much. One way would be a serious devotion to only use problems arising from applications of mathematics in our everyday life, but that is a radical limitation. Another possibility is use of scientific calculators or computer algebra systems (CAS) in the classroom. Many of us decided for one, the other or both. Right here next to my left hand is my TI92, and next to my desk is a bag full of TI eighty something calculators. I have taught on a campus where Calculus is presented with the use of *Mathematica* and my campus today has a classroom set of *Derive* software. In my mind there is no doubt that technology is here to stay.

The main advantage of using CAS with students is in the ability to bring something new into the classroom. The graphing component of the calculators is a wonderful help. Each time I watch the Taylor series approximate $\sin x$ better and better with each higher degree polynomial, I become excited about being able not only to show the students a picture in the book, but also give them the feeling they can touch a Taylor polynomial. I can show my students how π was discovered by trying to find the perimeter of a unit circle, and I can completely work out the details. I can simulate direction fields and walk along the indicated directions to graph the solution of a differential equation. I can solve problems to the end instead of stopping a couple of steps before the finish and saying that the details are not so important as the idea. My students like the idea of seeing the final answer and comparing it to the one in the back of their textbook.

I very much support the idea that materials need to be technology based but not technology driven. For me this means a constant search for "really interesting problems." That is why I attend conferences and workshops. Many good problems can be found on the TI web page at http://www.ti.com, and some of the best ones I have learned about at T3 (Teachers Teaching with Technology) summer courses.

When I wonder how the use of calculators has changed the way my students look at mathematics, I review the many articles that have been published on that topic. (A very comprehensive listing of them can be found at http://dungeon.ti.com/calc/docs/research-b.htm, a site maintained by Penelope Dunham.) I also attend conferences like the ICTCM (International Conference on Technology in Collegiate Mathematics) and watch the enthusiasm of both the presenters and the participants.

My favorite presentation from this summer was an animated lecture by B. Kutzler; he compared mathematics to motion. (An article based on the lecture can be found at http://www.acdca.ac.at/kongress/goesing/index.htm) Motion can be achieved without any vehicle, but with a vehicle of some kind everyone can get farther, and for some of us a vehicle is necessary to travel even short distances. For some of us, a good vehicle can fly us to the moon. This is how I believe the calculators should enable our students, both in the classroom and later on when they go on their own "lunar" adventures.

Pencils are no less technological than calculators. Thus, mathematicians and teachers of mathematics have been dealing with the issue of the appropriate use and abuse of technology for centuries.

A Different Pencil will be our overall title for an occasional series of articles about the use of technology in mathematics and in the teaching of mathematics. Contributions are welcome; please submit articles for publication to Fernando Gouvêa at fgouvea@colby.edu.

Nora Franzova (nfranzov@harford.cc.md.us) earned her Ph.D. at the University of Rochester in 1996 and since 1997 has been assistant professor of mathematics at Harford Community College in Maryland.

Short Takes

New Quantitative Literacy Initiative

In October, the Pew Charitable Trusts announced the award of a grant to support planning of a national Quantitative Literacy initiative. Under this grant, a national Design Team will first develop a working definition of quantitative literacy applicable to learning in the later years of high school and early years of college, and then design a start-up model and infrastructure support for a National Numeracy Project. The grant award was made to the National Council on Education and the Disciplines located at the Woodrow Wilson Foundation in Princeton, New Jersey. For more information or to contribute ideas, contact Robert Orrill at orrill@woodrow.org or Lynn Steen at steen@stolaf.edu.

Teacher Preparation on Center Stage

Various groups have recently called attention to issues surrounding the quality of the preparation of teachers and the importance of accreditation. In late October, the American Council on Education called for an audit of all 1300 teacher-education programs in order to ensure that certified teachers are indeed fully prepared and qualified for their jobs. They also called on college presidents to make teacher education an institutional priority. In early November, the National Education Association called for a ban on the hiring of teachers without full certification. The National Council for Accreditation of Teacher Education endorsed the proposal. Such proposals are not uncontroversial, of course; in fact, some argue that emphasizing proper credentials will further reduce the already small pool of available teachers and will keep schools from using talented teachers coming from non-standard backgrounds. This is one more issue that will affect the many discussions of the undergraduate curriculum currently underway.

International Sunbelt Social Network Conference

The International Sunbelt Social Network Conference is a major forum for social scientists, mathematicians, computer scientists, and all others interested in social networks. The conference provides an opportunity for individuals interested in theory, methods, or applications of social networks to share ideas and common concerns. This year's conference will be in Vancouver, British Columbia, from April 13 to 16. More details can be found at the conference web site at http://www.sfu.ca/~insa or from Bill Richards (richards@sfu.ca) of Simon Fraser University.

Colorado Evaluates Colleges and Universities

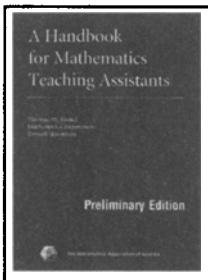
The Colorado Commission on Higher Education, following a directive from the Colorado General Assembly, has put together a list of explicit "performance measures" to be used to evaluate the state's colleges and universities. The list of thirty "performance indicators" is one of the attachments to the document found on the web at http://www.state.co.su/cche_cir/novva1.html, which describes the Commission's plan for implementing a "quality indicator system" for higher education. The benchmarks are an interesting attempt at pinning down what is meant by a high quality college education. The existence of the benchmarks points to the increasing concern to hold institutions of higher education accountable to the society as a whole.

A Web Site for Code Breakers

WGBH, the PBS station that produces the science program NOVA, has put together a web page to act as a companion for their program (which aired on November 9) on the top-secret project that broke the code of the German Enigma messaging machine during World War II. The site, which is at http://www.pbs.org/wgbh/nova/decoding/, offers various resources related to cryptography. Visitors can create cyphers, attempt to break cyphers, read about the safety of internet transactions, and lots more. The site includes a Teacher's Guide to help instructors use the program and the web material in their classes.

Replacing Homework with WeBWorK

The various ways to use the internet in teaching continue to attract much attention. Part of the interest seems to arise from dreams of teaching many students with fewer teachers (hence saving lots of money), but the more interesting reports have to do with creative ways to use the web to support, rather than replace, traditional teaching. One example is WeBWorK, an automated web-based homework checker that can give instant feedback to students on their assignments. WeBWorK, which was created by Michael Gage and Arnold Pizer of the University of Rochester, is being used by students at Rochester and at other universities, mostly in calculus and physics classes. Pizer and Gage won an innovation award for their work at the latest International Conference on Technology in Collegiate Mathematics (ICTCM), and reports indicate that students find the program quite helpful despite the difficulties involved in reading and writing mathematics on the computer. Visit http://webwork.math.rochester.edu to see what the program is like. ■



A Must For All Teaching Assistants!

A Handbook for Mathematics Teaching Assistants

Thomas Rishel

Preliminary Edition....Limited supply available.

In *A Handbook for Mathematics Teaching Assistants*, Thomas Rishel addresses the "nuts and bolts" issues of teaching college mathematics. This book is written for the mathematics TA or young faculty member who may be wondering just where and how to start. The book answers questions like how to keep a classroom active and lively; how to prepare writing assignments, tests, and quizzes; how exactly to write a letter of recommendation; and how to pace, minute by minute, the "mathematical talks" one will be called upon to give.

Catalog Code: HMT
150 pp., 1999, Paperbound
List: $15.00 MAA Member: $12.00

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Open Letter continued from page 1

In a widely-circulated email message, Hyman Bass of the University of Michigan said that he was "very upset by the letter, and the potential damage that it threatens." Bass, a respected research mathematician who is Chair of the Mathematical Sciences Education Board (MSEB) and President of the International Commission on Mathematical Instruction (ICMI), argued that the letter politicizes the discussion of the mathematics curriculum in a way that makes progress more difficult. Noting that most of the signers and endorsers are research mathematicians and scientists and not professionals involved directly with mathematics education, Bass wrote that the letter suggests "that these mathematicians and scientists are the final, and perhaps exclusive, intellectual authority on evaluating the quality of instructional materials in math and science. I am a mathematician who is interested in the improvement of mathematics education in this country, and I am deeply convinced that the expertise of my professional community has a vital role to play in educational research and policy. I have done my best to achieve such involvement. But I find that the implication symbolized by the list of signers of the Open Letter to be not only wrong, but dangerous and damaging. Ironically, it does a great deal to make serious professional collaboration impossible."

Bass also pointed out that the expert panel and the designation of programs as "exemplary" or "promising" were mandated by Congress. He described the decision to produce such an evaluation of mathematics curricula as "very ill-advised," but pointed out that complaints should be directed to Congress, not to the Department of Education.

The open letter is likely to have the effect of making the debate about the school mathematics curriculum still more intense, both within the mathematical community and in the public square. The main challenge will be to keep the discussion respectful, serious, and intellectually honest, especially as the public and political aspects of the debate become ever more polarized and ideological. ■

Employment Opportunities

ARKANSAS

UNIVERSITY OF ARKANSAS AT LITTLE ROCK
Mathematics and Statistics
Two (2) Tenure Track Faculty

The University of Arkansas at Little Rock invites applications for two tenure track positions at the assistant professor level in the Department of Mathematics and Statistics commencing fall 2000. Candidates for the first position must have a Ph.D. in statistics. For the second position, we are seeking an applied mathematician with an earned doctorate in mathematics whose specialization is in one of the following areas: scientific computing, differential equations and numerical analysis. Candidates for both positions must show strong research potential, a proven commitment to excellence in teaching, and should expect to participate in cross-disciplinary graduate and undergraduate programs with a newly emerging engineering program.

The University of Arkansas at Little Rock is a metropolitan institution located in the population center of Arkansas. The current enrollment is about 11,000 students.

Review of applications will begin immediately and continue until the positions are filled. Applicants should send their curriculum vitae, including publications list, and at least three letters of recommendation to the appropriate search committee. Statistics Faculty Search Committee (or) Mathematics Faculty Search Committee, Department of Mathematics and Statistics, University of Arkansas at Little Rock, 2801 South University, Little Rock, AR 72204.

The University of Arkansas at Little Rock is an equal opportunity affirmative action employer and actively seeks the candidacy of minorities, women and persons with disabilities. Under Arkansas law, all applications are subject to disclosure. Persons hired must have proof of legal authority to work in the United States.

CALIFORNIA

THE BISHOP'S SCHOOL

Mathematics opening. Math degree with 5 years successful teaching experience in secondary school or college math. Experience with graphing calculators and other technology preferred. Mail cv to Michael Teitelman, 7607 La Jolla Blvd, La Jolla, CA 92037.

SAN JOSE STATE UNIVERSITY
Department of Mathematics and Computer Science

Two tenure track positions in Mathematics at the rank of Assistant Professor for the 2000-01 academic year. Candidates must have a PhD in Math by August 2000. Preference will be given to candidates whose research areas are probability, statistics and/or linear algebra. Candidates must be sensitive to the educational goals of a multicultural population, and be committeed to quality teaching at all levels. Application deadline is March 1, 2000. Applicants should send vita, transcripts, and 3 letters of recommendation to Dr. Michael Burke, Dept. of MathCS, San Jose State University, San Jose, CA 95192-0103. EOE/AAE.

PVIN: SCI 00-046.

COLORADO

UNIVERSITY OF COLORADO AT DENVER
Department of Mathematics

The Department of Mathematics at the University of Colorado at Denver is seeking to fill a tenured Full Professor position in Mathematics Education, beginning August 2000. The successful candidate will lead the department's growth in Mathematics Education, which is a major thrust in the strategic plan for the next 5 years. It is expected that there will be subsequent appointments of junior faculty members in this area. This is an opportunity to impact Mathematics Education at all levels, in a major urban center with an attractive location.

Beginning July 1, 1999, the department received a 5-year Program of Excellence award from the Colorado Commission on Higher Education; some of these funds, along with internal funds committed by the administration, will be used to support outreach to K-12 schools, and computation and technology throughout the curriculum. The department has an excellent working relationship with the Graduate School of Education, and a long history of community outreach (UCD math courses taught in local high schools, on-campus courses solving practical problems for sponsors) and of the use of technology in education (two computing labs, web resources at http://www-math.cudenver.edu/w4t). The future will bring innovations in on-line delivery and multimedia resources, and the need to use these to greatest educational benefit.

Applicants must have a Ph.D. in mathematics or a related discipline, strong leadership qualities, a commitment to professional service, and a distinguished record of accomplishment in teaching and Mathematics Education research. The department offers B.S., M.S., and Ph.D. degrees; faculty research interests span computational mathematics, discrete mathematics, engineering mathematics, operations research, probability, and statistics.

We will begin screening applications January 18, 2000. To apply, please send a current vita, list of publications, statement of educational philosophy, statement of research plans and goals, and the names of three references to:

Tom Russell, Chair
Department of Mathematics
University of Colorado at Denver
P.O. Box 173364, Campus Box 170
Denver, CO 80217-3364

Fax: 303-556-8550. For more information on our department and university visit our web site at http://www-math.cudenver.edu.

The University of Colorado at Denver is an equal opportunity employer committed to excellence through inclusiveness. The Colorado Open Records Act (C.R.S. 24-72-204) requires a written request for confidentiality at the time of application. Applications without such a request may be open records and may be disclosed. Alternative formats of this ad or job description are available upon request.

FLORIDA

STETSON UNIVERSITY

Stetson University invites applications for a tenure-track position beginning August, 2000. A Ph.D. in mathematics is required. Rank and salary will be commensurate with experience. The duties include teaching a broad range of undergraduate courses to both majors and non-majors, maintaining a program of scholarly activity, and university service. The teaching load is three courses per semester. Salary is competitive.

The successful candidate will exhibit an enthusiasm and talent for teaching, support department standards for student performance, and contribute to the intellectual life of the department. Candidates should have an interest in undergraduate research. An interest in interdisciplinary work or applied mathematics is a strong plus.

Stetson, Florida's first private university, is a small selective university of 2000 students. We are located in DeLand, FL, 40 miles from Orlando and 20 miles from Daytona Beach. The department consists of seven mathematicians and four computer scientists, and has a variety of computing resources available, including computer-equipped teaching laboratories. Further information about our department is on our web page: http://www.stetson.edu/departments/mathcs/.

Please send the following to the address below: letter of application, curriculum vitae, AMS cover sheet, and statements of teaching philosophy and mathematical interests. Also arrange for three letters of reference (at least one of which addresses teaching).

Search Committee
Department of Mathematics
and Computer Science
Stetson University
DeLand, FL 32720

Stetson University, an equal opportunity employer, affirms the values and goals of diversity and strongly encourages applications from women and candidates from groups historically underrepresented in higher education.

MARYLAND

FROSTBURG STATE UNIVERSITY
Assistant Professor of Mathematics

FSU seeks a full-time, tenure-track Assistant Professor of Mathematics to begin August 2000. RESPONSIBLITIES: Teach 12 credits of undergraduate mathematics per semester and share departmental responsibilities. Teach mathematics content courses to elementary education majors as part of the normal course load. Salary is negotiable (mid-thirties), commensurate with credentials and experience. MINIMUM QUALIFICATIONS: Doctorate in mathematics or mathematics education; teaching experience and quality of teaching are of prime concern. PREFERRED QUALIFICATIONS: Background in modeling, technology and/or supervising internship programs. Direct inquiries to Dr. Richard Weimer, (301) 687-4384 or email: rweimer@frostburg.edu. Send letter of interest, resume, transcripts, and three letters of recommendation by February 1, 2000, to: Frostburg State University, Office of Human Resources, ATTN: Assistant Professor of Mathematics (Position #2000-1028-FOCUS), Frostburg, MD 21532.

FSU Is An AA/EOE. Appropriate Auxiliary Aids & Services For Qualified Individuals W/Disability Will Be Provided Upon Request. Please Notify In Advance. WWW.FROSTBURG.EDU.

MASSACHUSETTS

WILLIAMS COLLEGE
Department of Mathematics
Williamstown, Massachusetts 01267

Tentative full-time visiting position in mathematics for the 2000-2001 year, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and research, and Ph.D. required.

Please have a vita and three letters of recommendation on teaching and research sent to Visitor Hiring Committee. Evaluation of applications will begin on or after January 15 and continue until the position is filled. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

MICHIGAN

LAKE SUPERIOR STATE UNIVERSITY

MATHEMATICS FACULTY: The School of Mathematics and Computer Science at Lake Superior State University seeks candidates for two tenure track positions in mathematics. Both positions will be at the assistant professor rank. Beginning date is January, 2000 or August, 2000. The School of Mathematics and Computer Science is housed in the College of Engineering and Mathematics. Programs offered include Mathematics, Computer and Mathematical Sciences, Computer Science, both baccalaureate and associate degrees, Computer Engineering, Electrical Engineering, and Mechanical Engineering.

QUALIFICATIONS: An earned doctorate in mathematics, or a related field is preferred, although consideration will be given to individuals who possess a masters degree and teaching experience. Individuals with a background and interest in teaching mathematics courses with engineering applications, statistics, or computer science courses as well as upper and lower level mathematics courses are encouraged to apply.

Submit a letter of application, curriculum vitae, and list of references to the Mathematics Faculty Search; Human Resources Office; Lake Superior State University; 650 W. Easterday Avenue; Sault Ste. Marie, MI 49783. Application information can be faxed to: 906-635-2111 or E-mailed to: humanresources@gw.lssu.edu. For additional information, contact the Human Resources Office at (906) 635-2213.

Review of applications will begin immediately and continue until the position is filled.

An Equal Employment Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.

MINNESOTA

HAMLINE UNIVERSITY
Computer Science/Mathematics

Applications are invited for a full time position, possibly tenure-track pending approval, to begin September 2000. We are seeking to expand a small Computer Science program, offering courses with varied applications. Thus candidates with interdisciplinary interests (e.g. management or scientific applications of computing) are especially encouraged. Candidates should also indicate their interest in collaborative undergraduate research. The faculty member will generally teach 4 Computing and 2 Mathematics courses per year. A Ph.D. in Mathematics or Computer Science is required. Hamline is an equal opportunity employer; women and members of other underrepresented groups are encouraged to apply. Review of applications will begin in February. Applications will be accepted until the position is filled.

Hamline is a small urban university in a five-college consortium, with proximity to the University of Minnesota and many other colleges. We emphasize excellence in teaching in a liberal arts setting. Send curriculum vita and cover letter including 3 contact references to: Prof. Nadine Myers, Chair, Department of Mathematics Mail #25, Hamline University, 1536 Hewitt Avenue, St. Paul, MN 55104.

SOUTHWEST STATE UNIVERSITY
Mathematics
Southwest State University invites applications for a probationary full time Assistant/Associate Professor of Mathematics to begin August 16, 2000 or a date to be negotiated. The faculty member will teach a full range of mathematics courses and participate in department and university activities, which may include curriculum development, program review, supervising University courses taught in regional high schools, and other outreach activities in both mathematics and mathematics education. A doctorate in mathematics or mathematics education is required. The applicant must have a strong commitment to teaching at the undergraduate level and to working with mathematics education students in addition to having excellent written and oral communication skills. Preference will be given to the applicant who is able to teach a broad range of courses in mathematics and mathematics education. Experience in computer science or computer use in teaching mathematics is desirable. Letter of application addressing position qualifications, vita, teaching evaluations, official transcripts and name, address, and phone numbers of three references should be submitted to: Office of Human Resources, Southwest State University, 1501 State Street, Marshall, MN 56258. Review of the applications will begin on February 15, 2000 and will continue until position is filled. SOUTHWEST STATE UNIVERSITY IS AN EQUAL OPPORTUNITY EDUCATOR AND EMPLOYER. APPLICANTS MUST BE ABLE TO LAWFULLY ACCEPT EMPLOYMENT IN THE UNITED STATES.

NEW JERSEY

ROWAN UNIVERSITY
Assistant professor of mathematics with primary responsibility to teach lower and upper division undergraduate mathematics courses including courses in calculus and statistics. The ideal candidate will also be expected to help develop the graduate program by occasionally teaching a graduate level course. Normal teaching load per semester is four courses. All applicants must have an earned doctorate in mathematics, with an interest in undergraduate research and teaching. The successful candidate must be able to demonstrate not only mathematical ability but also an ability to communicate mathematics clearly and effectively to undergraduate students. Dedication to teaching is required. Interested candidates should submit a letter of application, a curriculum vitae, official transcripts, and three letters of reference. The letters of reference must not only attest to your mathematical qualifications, but also to your teaching abilities. The deadline for applications is January 24, 2000. Incomplete applications will not be considered. Submit all materials to: Ronald J.Czochor, Chair, Department of Mathematics, Rowan University, Glassboro,NJ 08028.
E-mail Czochor@rowan.edu .

NEW YORK

DAEMEN COLLEGE
Mathematics
The Dept. of Mathematics and Computer Science has a tenure track position in Mathematics beginning 9/2000 to teach 12 credit hours/semester. A Ph.D. in Mathematics with the ability to teach Computer Science courses is required. The successful candidate will demonstrate skills or show potential for excellence in undergraduate teaching, service to the College and continuation of scholarly activity. A Master's degree in Computer Science is preferred. Review of applications begins 12/1/99 and continues until the position is filled. For consideration, send vitae with letter of introduction including statement of teaching philosophy, transcripts (copies accepted), and 3 letters of reference to Daemen College, Personnel Dept., 4380 Main St., Amherst, NY 14226. Daemen College is an Affirmative Action/Equal Opportunity Employer.

Reconnect '00

Reconnect '00 is geared towards exposing faculty teaching undergraduates to two current research topics relevant to the classroom and involving them in writing materials useful in the classroom. This conference is also aimed at reconnecting faculty to the mathematical sciences enterprise by involving them in a leading research center. The dates of the program are June 19–30, 2000 and the topics and principal lecturers are Professor Larry Gray of University of Minnesota on "Explorations in the world of Cellular Automata" and Cathleen McGeoch and Lyle McGeoch of Amherst College (topic to be announced). The Conference Organizers are Rochelle Leibowitz, Wheaton College rochelle_leibowitz@wheatonma.edu and Fred S. Roberts, Rutgers University froberts@dimacs.rutgers.edu. Sessions will be held at the DIMACS headquarters, located at Rutgers University in Piscataway, NJ. Lodging and meals will be provided through NSF funding. Faculty from two and four year colleges and others whose primary job is undergraduate teaching. To receive more information, visit our web site at http://dimacs.rutgers.edu/reconnect/ Or, contact Christine Spassione, Reconnect Program Administrator, at spassion@dimacs.rutgers.edu, or telephone at (732) 445-5928.

COLGATE UNIVERSITY
The Mathematics Department of Colgate University is accepting applications for a one-year visiting assistant professorship beginning August 2000. A Ph.D. is required. We invite applications representing all areas of mathematics. Colgate University is a highly selective liberal arts college with 2700 students. Faculty members normally teach five courses per year and are expected to maintain an active program of original research. They are also encouraged to participate in all-university programs. Applicants should send vita, an unofficial graduate transcript and three letters of recommendation by January 15, 2000, to The Search Committee, Department of Mathematics, Colgate University, 13 Oak Drive, Hamilton, NY 13346-1398. Colgate is an equal opportunity, affirmative action employer. Applications from women and minorities are encouraged.

SUNY COLLEGE AT BROCKPORT
Assistant Professor
Department of Mathematics
Tenure-track assistant professorship in the Department of Mathematics available August 2000. Required: Earned doctorate in mathematics, or in mathematics education with a strong mathematical component. Demonstrated expertise in geometry. Evidence of a strong commitment to the teaching of geometry and mathematics at the undergraduate and graduate levels. Expertise in developing mathematics for teachers/geometry courses which utilize technology extensively. A record of scholarship and evidence of the ability to carry out research. Ability to work with a diverse population. (The availability of this position is contingent on final budget approval).

Send a letter of application and resume and have three letters of reference sent by 1/31/2000 to: Mr. Richard D. Meade, Faculty/Staff Recruitment Office, SUNY College at Brockport, Brockport, NY 14420-2929. AA/EOE.

STATE UNIVERSITY OF NEW YORK AT OSWEGO
The Mathematics Department at State University of New York at Oswego is accepting applications for a tenure track position in mathematics education effective Fall 2000. The successful candidate will have an Ed.D. or a Ph.D. in mathematics education or mathematics, demonstrated interest and experience in teaching mathematics in grades 7-12 and knowledge of the curriculum and culture of American secondary schools. In addition, the applicant should exhibit the potential to develop a program of research and scholarship. Duties include: teaching undergraduate mathematics in a secondary education teacher preparation program and a mathematics methods course, supervision and

mentoring of student teachers, and outreach and collaboration with inservice mathematics teachers at the middle and secondary level. Rank and salary will be commensurate with experience and qualifications. The position will be filled pending budgetary approval. Review of applications will begin on February 1, 2000; however, they will continue until the position is filled. Send letter, curriculum vita, transcripts and three letters of recommendation to: Dr. Margaret Groman, Chair, Department of Mathematics, State University of New York at Oswego, Oswego, New York. SUNY Oswego is an Affirmative Action Employer.

OHIO

SHAWNEE STATE UNIVERSITY
Chairperson
Department of Mathematical Sciences
Shawnee State University, an open-admission undergraduate state institution that enrolls 3500 students, is accepting applications for the position of chairperson for the Department of Mathematical Sciences. The department has eleven full-time members.

Qualifications: A doctorate in the mathematical sciences or math education (with the equivalent of a strong master's degree in mathematics), substantial experience in undergraduate math education, administrative experience, and a strong commitment to undergraduate education. The department is seeking an individual with experience and interests that include developmental courses, general/liberal education and service courses, and upper division courses for math majors. The department values the use of a variety of approaches to teaching and learning, including appropriate use of technology, use of applications to motivate mathematical ideas, collaborative learning, and development of students' abilities to communicate mathematical ideas.

A complete application file will include a letter of application, vita, and three letters of reference. Candidates should clearly and specifically address how their qualifications satisfy the requirements for the position and are encouraged to submit supporting information with their applications. Faxed and electronically submitted applications will not be considered. Send application materials to:
Dr. Jerry Holt
Dean, College of Arts and Science
Shawnee State University
940 Second Street
Portsmouth, OH 45662-4344
Information about the University is available on our homepage at http://www.shawnee.edu.
SSU seeks staff who share our commitment to students as our first priority. SSU is an affirmative action/equal opportunity employer.

OREGON

UNIVERSITY OF PORTLAND
The Department of Mathematics at the University of Portland has an opening for a tenure track assistant professor. The primary teaching duties will be the mathematics instruction of prospective K-8 teachers.

Requirements are a Ph.D. in math with training or experience in K-12 math ed, or, Ph.D. in math ed with a master's degree (or equivalent) in math.

Applicants should send:
- a resume & letter of application
- transcripts of all graduate & undergraduate work
- three letters of recommendation, at least one of which should discuss the applicant's potential and/or experience as a teacher
- a short (1-2 page) essay of the applicant's views on one issue in K-12 mathematics education

Send these materials to:
John Kurtzke, C.S.C., Chair
Department of Mathematics
University of Portland
5000 N. Willamette Blvd.
Portland OR 97203

Deadline: January 31, 2000, or until the position is filled. We will participate in the Employment Register at the AMS-MAA Meetings in Washington.

SOUTH DAKOTA

NORTHERN STATE UNIVERSITY
Mathematics
Northern State University is seeking qualified applicants for a full time one-year appointment at the assistant professor level beginning August 15, 2000. This appointment is for a sabbatical replacement and is pending approval.

Applicants with a Ph.D. in mathematics or mathematics education from an accredited institution are preferred; ABD will also be considered. Teaching load is 12 credits/semester. Preference will be given to applicants who can teach a wide range of introductory and advanced courses, including statistics, in the undergraduate curriculum. The candidate must demonstrate exceptional competence in teaching and strong communication skills. Experience in computer science or computer use in teaching mathematics is desirable.

Founded in 1901, Northern State University is located in Aberdeen, South Dakota, population 30,000. The institution is classified as a Carnegie MA I multi-purpose university, and is accredited by the North Central Association. It is organized into the College of Arts and Sciences and the Schools of Business, Education, and Fine Arts. Graduate programs are offered at the Master's level in education and counseling. NSU is facing the next century with an excellent technology infrastructure and superior opportunity for faculty training in integrating technology into teaching and learning. Northern State University is known for its beautiful campus and prides itself on being a student-oriented community.

Consideration of applications will begin on February 14, 2000 and will continue until the position is filled. Applications should include a statement of teaching philosophy, vita, copies of transcripts, and three current letters of reference. Send applications to Dr. Don Cozzetto, Vice President for Academic Affairs, NSU, 1200 S. Jay St., Aberdeen, SD 57401-7198.
http//:www.northern.edu

Northern State University is an equal opportunity institution.

TEXAS

SAM HOUSTON STATE UNIVERSITY
Mathematics Position
Specialty in Mathematics Education
The Dept. of Mathematics, Computer Science, and Statistics seeks applicants in a tenure-track position for a specialist in mathematics education. Rank and salary are negotiable. Applicants should have the equivalent of a master's' degree in mathematics and hold a doctorate in mathematics or mathematics education. Preference will be given to persons having an interest in teaching and developing curricula for prospective teachers. Experience in grant procurement, in-service teacher education, use of technology in the classroom, research and publication are also desirable qualities. Review of applications will begin 3 January 2000 and continue until the position is filled. To apply submit a letter of application, full curriculum vitae, transcripts, and three letters of reference to: Mathematics Education Search Committee, Dept. of Mathematics, Computer Science, and Statistics, Sam Houston State University, Huntsville, TX 77341-2601.

Sam Houston State University is an EEO/AAP employer. For additional information on this and other positions, access our web site at: www.shsu.edu/~hrd_www.

UTAH

WEBER STATE UNIVERSITY
Weber State University in Ogden, Utah, invites applications for a tenure-track position in Mathematics Education. For information, see **http://weber.edu/hr/bluesheet.asp.** Click on **Details** of mathematics faculty position. Weber State University is an AA/EO employer.

VIRGINIA

LONGWOOD COLLEGE
Mathematics Education
Assistant/Associate Professor, tenure track.

Ph.D. or Ed.D. in mathematics education preferred, ABD considered. A strong math background is required, and successful college and K-12 teaching experience is preferred. The desire to teach well is critical. The successful candidate will teach all levels of undergraduate mathematics education, supervise student teachers, engage in scholarship and professional activity, and contribute to the work of the department.

Longwood College is a state supported comprehensive college with approximately 3400 students located 60 miles west of Richmond. For more information about the College and the Department, see http://web.lwc.edu/academic/LAS/Math/dept.htm.

Submit a letter of application, vita , a statement of teaching philosophy, informal transcripts, and three references to

Professor Robert Webber
c/o Human Resources
Longwood College
Farmville, VA 23909

Review of applications will begin immediately and continue until the position is filled. Longwood College is an Affirmative Action/Equal Opportunity Employer. Women and under-represented minorities are encouraged to apply.

NATIONAL SCIENCE FOUNDATION

The Division of Elementary, Secondary and Informal Education of the National Science Foundation seeks qualified applicants to serve as temporary "Intergovernmental Personnel Act (IPA)" or Visiting Scientist appointments as Program Directors while on leave from universities, colleges, or other educational or nonprofit agencies. In 2000 the Division expects to make appointments in several of the following areas:

- Teacher Enhancement, including large collaborative for teaching, professional development and advanced education–mathematics, various disciplines in science
- Instructional Materials Development various disciplines in science.
- Informal Science Education–liaison between formal and informal education, especially for youth/community programs.

NSF is an equal opportunity employer committed to employing highly qualified staff that reflects the diversity of our nation. Those interested in being considered will find further information about position responsibilities, qualifications, etc., at: http://www.nsf.gov/home/chart/work.htm#hrm.

WISCONSIN

MOUNT MARY COLLEGE

Mathematics/Mathematics Education

Assistant Professor: Qualifications—ABD or doctorate preferred. Preference given to candidates with proven excellence in college-level teaching experience in mathematics/mathematics education. Additional preferred qualifications: interest in mathematics curriculum reform and innovative format and delivery systems; knowledge of current standards in mathematics education; mathematics teaching experience in K-12; ability to teach mathematics methods course for middle/secondary mathematics education majors; ability to teach computer and statistics courses. Primary responsibilities include teaching a variety of undergraduate mathematics courses (introductory and upper division courses in both day and evening sections), and advising students.

Please send letter of interest, resume, transcripts, names and contact information for three references to the attention of Sister Joy Marie Parolari, Chair, SSND, c/o Human Resources. Review of applications begins immediately, and will continue until position is filled. Please indicate if you wish confidentiality. Visit our web page at www.mtmary.edu. Mount Mary College is an Equal Opportunity Employer encouraging minorities, women, veterans and individuals with disabilities to apply.

Mount Mary College
2900 N. Menomonee River Parkway
Milwaukee, WI. 53222-4597
414-256-1208

SECTION MEETINGS

Florida March 3-4, 2000 University of South Florida, Tampa, FL

Illinois March 30-April 1, 2000 North Central College, Naperville, IL

Intermountain March 10–11, 2000 Southern Utah University, Cedar City, UT

Kansas March 31–April 1, 2000 Baker University, Baldwin City, KS

Kentucky March 31 - April 1, 2000 Eastern Kentucky University, Richmond, KY

Nebraska-Southeast South Dakota April 2000 Nebraska Wesleyan, Lincoln, NE

North Central March 31–April 1, 2000 Duluth Convention Center, Duluth, MN

Northern California February 26, 2000 San Francisco State University

Oklahoma-Arkansas March 31-April 1, 2000 Arkansas Tech University, Russellville, AR

Southeastern March 10-11, 2000 UNC-Charlotte, Charlotte, NC

Southern California March 4, 2000 University of California, Los Angeles

FRAMINGHAM STATE COLLEGE

MATHEMATICS DEPARTMENT

Tenure-track Assistant Professor Mathematics, beginning September 2000

The Mathematics Department invites applications for a tenure-track, assistant professor appointment beginning Sept. 2000.

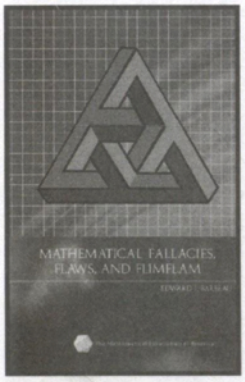
Applicants must have a doctoral degree in mathematical sciences and show evidence of a strong commitment to excellence in teaching and continued scholarly growth. The successful candidate would teach courses throughout the mathematics curriculum, including courses satisfying the college's mathematics requirement. The teaching load is three courses per semester (12 hours per week).

To apply, please send vita, official transcripts, a statement of teaching philosophy, and three letters of reference, at least one of which comments on teaching ability, to **Search Committee, Department of Mathematics, Framingham State College, Framingham, MA 01701. The closing date for applications is Feb. 29th.**

Framingham State College is an equal opportunity/affirmative action employer. Persons of color, women, and persons with disabilities are strongly urged to apply.

The Mathematical Association of America

Three of the latest from MAA Publications!



Mathematical Fallacies, Flaws, and Flimflam

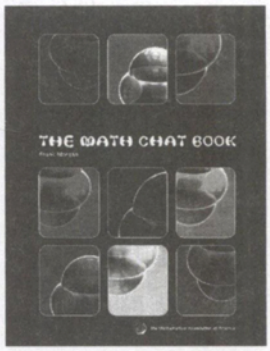
Edward J. Barbeau

This book is a collection of mathematical mistakes made by students, teachers, and occasionally seasoned researchers, along with an analysis for most of them. While all the material is for personal enlightenment and amusement, high school and college teachers may use the material to illustrate important and subtle points in mathematics. Newspapers are responsible for a good number of these mathematical mishaps, particularly in arithmetic (especially percentages) and probability. Quite a number of the "fallacies" come from professional mathematicians. Some are the result of simple oversight, and others are deliberately crafted by the mathematician to drive home an important point to students. A glimpse at the Table of Contents offers examples from number theory, algebra and trigonometry, geometry, finite mathematics, probability, calculus, linear algebra and advanced undergraduate mathematics.

Catalog Code: FFL
152pp., Paperbound, 1999
ISBN 0-88385-529-1
List Price: $24.95 Member Price: $19.95

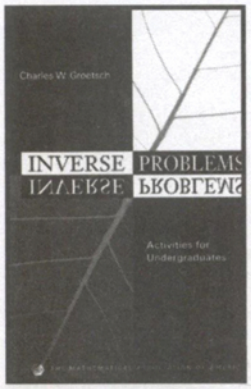
The Math Chat Book

Frank Morgan



This book shows that mathematics can be fun for everyone. It grew out of Frank Morgan's live, call-in *Math Chat* TV show and biweekly *Math Chat* column in The Christian Science Monitor. The questions, comments, and even the answers come largely from the callers and readers themselves. This book makes no attempt to fit any mold. Although written by a research mathematician, it goes where the callers and readers take it, over a wide range of topics and levels. Almost anyone paging through it will find something of interest. Why does the new year start earlier in Europe? Why is the Fourth of July on a different day of the week each year? How can you be elected President with just 22% of the vote? Can a computer have free will? Didn't some kid find a mistake on the SATs? Do airplanes get lighter as passengers eat lunch?

Catalog Code: MCH
124pp., Paperbound, 1999
ISBN 0-88385-530-5
List Price: $19.95 Member Price: $16.00



Inverse Problems

Activities for Undergraduates

Charles W. Groetsch

Inverse problems are hard to define, yet nearly all mathematicians recognize an inverse problem when they see one. As children we learn about the direct problem of multiplication; given two numbers we find their product. The corresponding inverse problem is to find a pair of factors of a given number. This book introduces mathematics instructors to inverse problems and provides them with resouces that are useful for teaching inverse problems to students in the first two undergraduate years. Scripts in MATLAB keyed to computations in the modules are provided in an appendix (the M-files may be downloaded from the author's web page).

Catalog Code: IPR
218 pp., Paperbound, 1999
ISBN- 0-88385-716-2
List Price: $26.00 Member Price: $20.50

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