SPRING 2005 NEWSLETTER

2004 - 2005 Section Officers and Committee Members

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2006 Distinguished Teaching Award Call for Nominations

Each year, the section recognizes one outstanding teacher of collegiate mathematics with an award named in honor of Burton W. Jones, a life long advocate of excellence in teaching at all levels. In addition to am honorarium, a certificate and an invitation to deliver the opening lecture at the next Section Meeting, the recipient becomes the section's nominee for the Deborah and Franklin Haimo Awards for Distinguished College or University Teaching of Mathematics. These national awardees (at most three) are honored at the MAA winter meeting with a certificate and $1000 check. All nominators also receive a certificate of in recognition of their efforts to support the section mission of promoting excellence in teaching; nominators and nominees both receive free meeting registration at the next section meeting. To begin the nomination process for an outstanding teacher that you know, simply submit the **one-page nomination form** (available at our website) by **1 December 2005**. **Complete nomination materials** (described on the website) are due **29 January 2006**.

Governor's Report

Due to family matters, I was unable to attend the Joint Meetings held in Atlanta. I heard from others that the meeting went very well. This is my last report as governor of the Rocky Mountain Section of the MAA. It has been a fulfilling role to serve as governor of our section. I know my successor will do an excellent job and enjoy this position as much as I have.

I look forward to seeing all of you at our section meeting to be held at UNC and at Mathfest to be held in Albuquerque. Below are a few items from the Atlanta meeting.

1. The Board has agreed to endorse the formation of a small adhoc working group to help redefine the priorities of the MAA and in crafting a strategic planning process that will guide us as we head to our Centennial in 2015. Joan Leitzel is serving as chair of the committee. Other members include Tina Straley, Jerry Porter, Dan Maki, Barbara Faires, and David Stone. Initially the committee will focus on the AMC, Revenue, and Professional development.
2. The MAA has formed a joint committee with the National Council of Teachers of Mathematics (NCTM) called the MAA-NCTM Joint Committee on Mutual Concerns. The charge to this committee is to propose activities and policies that identify and articulate the mutual concerns of MAA and NCTM in mathematics and mathematics education. This committee was formed since there is a need for more communication and cooperation between the two organizations.
3. A new SIGMAA on Teaching Advanced High School Mathematics (TAHS) has also been approved.
4. The carriage house renovation is moving ahead. I am enjoying being a member of the advisory board and we now have approval from Paul and Virginia Halmos to hold a 3-4 day program highlighting the career of Paul Halmos by having sessions one each of his many areas of work. We anticipate having the opening program in the early summer of 2006.
5. MAA has received a Pathways grant from the National Science Digital Library program of the NSF. In addition to support the creation of a portal, *The Math Gateway,* for undergraduate mathematics within NSDL, the grant will provide support for the continuation and extension of the Mathematical Sciences Digital Library (MathDL)
6. It wouldn't be a governor's report if I didn't comment on the Mathematical Study Tours. There is still room for the 2005 study tour of the Maya – see Aug/Sept and October issue of *FOCUS* for more information.

Respectfully Submitted,
Hortensia Soto-Johnson, Governor

Section News

Colorado College

This has been a busy fall for several members of the Colorado College mathematics department. **David Brown** took advantage of the block plan to spend a month as a visitor at Cornell College in Mt. Vernon, Iowa. Colorado

College and Cornell share the one-course-at-a-time academic calendar and, at a departmental meeting of the minds last spring, we found that we had much to offer each other. David team-taught with Cornell's **Andy Wildenberg**; their class, bioinformatics, was new to Cornell and will serve as a template for a new computer science class at Colorado College. David thoroughly enjoyed the experience and is grateful to the faculty and students at Cornell for making him feel at home. He is glad to see mountains again, though.

Jonathan Bredin spent the 2004 summer and fall visiting **Daniela Rus** at the Massachusetts Institute of Technology Computer Science and Artificial Intelligence Laboratory located in the new Frank Gehry building, and **David Parkes** in the computer science group at Harvard University. While at MIT, Jonathan studied distributed algorithms to repair sensor networks and at Harvard he studied bargaining theory, rational ad-hoc networking, and incentive-compatible dynamic auctions.

Meanwhile, back at CC, **Steven Janke** and **Fred Tinsley** have just finished their text titled *Introduction to Linear Models and Statistical Inference*. Wiley & Sons should have the book out later this spring. A newly revised CRC edition of Marlow Anderson's book *A First Course in Abstract Algebra: Rings, Groups, and Fields*, co-authored with a frequent visitor to Colorado College, **Todd Feil**, has literally just rolled off the presses. And, **John Watkins** enjoyed his 15 minutes of fame being interviewed on BBC Radio about his recently published book *Across the Board: The Mathematics of Chessboard Problems* (Princeton University Press).

Looking ahead to the spring, we are excited to be hosting the second annual Pikes Peak Regional Undergraduate Mathematics Conference on Saturday, February 26, and we have an external departmental review coming up in March. Also in March, a very brave **Josh Laison** is taking his Graph Theory class of 12 students to Boca Raton, FL to participate in the 36th Southeastern International Conference on Combinatorics, Graph Theory, and Computing. The students will attend, discuss, and report on a number of graph theory and combinatorics talks throughout the week.

Metropolitan State College of Denver

The Department welcomes our new faculty member in statistics, **Nels Grevstad.**

Is news from your school missing?
Send your news to your department liaison now with a request to forward it to the Newsletter Editor for inclusion in the next issue.

COLOMATYC Conference

COLOMATYC (The Colorado Mathematical Association of Two-Year Colleges) will hold a conference on Friday, March 4, 2005 at Red Rocks Community College. Please contact Rick Reeves at Rick.Reeves@rrcc.edu (303-916-6400) for more information.

Front Range Applied Mathematics Student Conference at the University of Colorado at Denver Saturday, March 5, 2005

The SIAM Student Chapters of the University of Colorado campuses are organizing the Front Range Applied Mathematics Student Conference on Saturday, March 5th, 2005 at the University of Colorado at Denver campus (downtown Denver on the Auraria campus).

The conference is open to BOTH undergraduate and graduate students and will focus on student research projects and presentations in Applied Mathematics.

This will be a great opportunity for learning about current student research in the Front Range area and meeting fellow students.

Further information about this conference can be found at:
http://amath.colorado.edu/siam/conference/

Shane Kirkbride
SIAM Student Chapter President
University of Colorado at Colorado Springs

Nominees Sought

Executive Committee Nominations Sought

Nominees are now being sought for the position of 2005 - 2007 **Section Vice Chair**. This position on the Executive Committee is reserved for a faculty member from a junior or community college within the Rocky Mountain Section. In addition to acting as a contact between the Executive Committee and the two-year\community colleges within the section, duties of the Vice Chair include serving as a member on the Program Committee, the Awards Selection Committee, and the Committee on Professional Linkages.

Nominees are also sought for the position of 2005 - 2008 **Secretary/Treasurer.** In addition to responsibility for section archives and finances, this individual serves on the Program Committee, prepares annual reports and minutes of all Section and Executive Committee meetings, assists other officers in the performance of their duties, and handles details not assigned to other officers.

Both elections will take place at the 2005 Spring Section Meeting in Greeley. For information about the responsibilities of either position, please contact the Section Secretary **Janet Barnett** at janet.barnett@colostate-pueblo.edu , 719 -549-2540.

To make a nomination, please contact the Nominating Committee Chair Tracii Friedman at tfriedma@mesastate.edu , 970-248-1667. The deadline for these nominations is February 25, 2005.

"Art + Math = X" Conference in Honor of the 60th Birthday of Michelle Emmer To be held at The University of Colorado at Boulder Mathematics Building June 2 – 5, 2005

Conference Web Site/Updates
http://math.colorado.edu/Art&Math/conference/2nd_announcement.html

This conference is one of the highlights of the Special Year in Art and Mathematics at the University of Colorado at Boulder http://math.colorado.edu/Art&Math

THE 2005 SPECIAL YEAR

The "2005 CU Special Year in Art and Mathematics" is a program whose main sponsors are the Department of Art and Art History, Mathematics, and the UMC Gallery of the University of Colorado at Boulder. The Special Year focuses on the exploration of the relationship between art and mathematics with an accent on the visual arts. The Special Year will enrich the experience of art and mathematics for students and the community by presenting those subjects in a new, exciting way that creates new meaning. It will help build a University-Town partnership in which everybody will benefit greatly from the planned activities.

THE CONFERENCE

The conference "Art + Math = X," June 2-5, 2005, at the University of Colorado in Boulder encompasses a broad range of fields as they relate to art, mathematics and/or computer technology, including the exploration of the following themes: visualization and computer generated art, pattern and symmetry, geometry in quilting and artistic handicrafts, mathematics of knots and other 3-D objects. Conference participants will share information and discuss common interests, allowing new ideas and partnerships to emerge that can enrich interdisciplinary research and education.

SCIENTIFIC/ARTISTIC CONFERENCE ORGANIZERS:
Michelle Emmer, Anthony Phillips, Carla Farsi, Kristi Graham, James Johnson, Andrew May

First Annual Front Range Undergraduate Mathematics Conference: Lessons Learned

On October 30, 2004, the Department of Mathematical and Computer Sciences (MCS) at Colorado School of Mines (CSM) hosted the First Annual Front Range Undergraduate Mathematical Sciences Conference. This conference was partially supported by MAA - NSF Regional Undergraduates Mathematics Program (DMS-0241090, CFDA number 47.076), the CSM Graduate School and MCS. The primary purposes of this conference were to provide undergraduate students with the opportunity to learn about graduate school options in the mathematical sciences that are available in Front Range universities and to allow undergraduate students to present their research findings in the mathematical sciences. This report briefly describes the design and outcomes of the first annual conference.

Application Process

Undergraduates interested in presenting at the conference were invited to submit a 500 word abstract on research that they had completed in one of the following areas: Pure Mathematics, Applied Mathematics, Statistics and Mathematics Education. These abstracts were reviewed for accuracy and appropriateness by MCS faculty members in the given area of specialization. Five abstracts were submitted for formal presentation and one was submitted for poster presentation. All were accepted for the conference. Authors of the five abstracts were given the additional option of creating a poster to supplement their oral presentation. One accepted presentation was not made due to a family emergency of the presenter.

Attendees

A total of twelve undergraduate students and seven graduate students attended the conference. Four of the students were female and three were minorities. Four graduate students and six undergraduates gave presentations. All of the graduate students and two of the undergraduate students were invited presentations. Fifteen mathematics faculty were also in attendance, two of whom were female. Five faculty members made presentations.

Conference Events

As is displayed in Table 1, the conference began with a half hour welcome and introduction by Dr. Nigel Middleton, Vice President of Academic Affairs and Dean of Faculty at CSM, and Dr. Barbara Moskal, Associate Professor of Mathematical and Computer Sciences at CSM. This was followed by the plenary talk given by Dr. Midge Cozzens who is the President and CEO of the Colorado Institute of Technology. Her talk, “A Time of Opportunity for Mathematical Science Majors”, discussed the importance of mathematics in society and the usefulness of degrees in the mathematical sciences. This was followed by two half hour presentations by undergraduate students and then lunch.

After lunch was a presentation concerning graduate school opportunities at universities in the Front Range. Three distinguished mathematicians, Dr. Bengt Fornberg, Department of Applied Mathematics, University of Colorado, Boulder, Dr. Simon Tavener, Department of Mathematics, Colorado State University, and Dr. Willy Hereman, MCS, gave short presentations concerning programs at their respective universities and responded to student questions. This was followed by three student presentations and a poster session. The poster session featured both undergraduate and graduate student research and information concerning Front Range graduate school opportunities.

After the poster session, three graduate students, Mr. Mark Hoefer, Department of Mathematics and Computer Science, University of Colorado, Mr. Tim Wildey, Department of Mathematics, Colorado State University, Ms. Que Nguyen, MCS, described their graduate school experiences and answered questions from the attending students. Faculty members were not permitted to attend this session and, instead, attended a gathering at a local coffee shop—this gathering facilitated the discussion and initial planning of future undergraduate conferences. The conference concluded with each speaker receiving a “Certificate of Appreciation” and a Colorado School of Mines coffee mug compliments of MCS.

Table 1

9:00 - 9:30 am	**Registration**
9:30 - 9:45 am	**Opening Remarks**
9:45 - 10:45 am	**Plenary Address**
11:00- 11:45 am	**Undergraduate Student Presentations: Session 1**
1:00 - 2:00 pm	**Graduate School Panel**
2:00 - 2:30 pm	**Undergraduate Student Presentations: Session 2**
2:30 - 3:00 pm	**Undergraduate Research Experiences**
3:00 - 3:15 pm	**Break**
3:15 - 4:00 pm	**Poster Sessions**
4: 15 - 5:00 pm	**Graduate Student Panel**
5:00 pm	**Closing Remarks and Awards**

Lessons Learned

Each of the attending students and faculty completed a short survey concerning the conference. The majority of the undergraduate students indicated that the conference highlights were the plenary address, and the discussions with faculty and graduate students. Graduate students indicated that they wished they had had the opportunity to attend such a conference as undergraduates.

A major disappointment was the low attendance. Based on the evaluations, we have learned several valuable lessons concerning undergraduate conference planning. First, never have a conference the day before Halloween or any other holiday. Unlike faculty, students have holiday weekend plans. Another thing not to do is have the conference the day of a campus football game, especially when the team is on an unprecedented winning streak. Not only does this cause parking problems, but it also adversely impacts attendance of both faculty and students.

There are also things that should be done when planning an undergraduate conference. Since undergraduates see the prospect of writing a 500 word abstract as an extremely daunting task, only a title of the presentation and a faculty member's endorsement should be requested. Additionally, a modest conference fee ($5 to $10) is necessary to ensure student attendance. We allowed approximately ten students to register without paying the conference fee in advance. None of these students attended and we paid for their uneaten lunch. Graduate student work was also of great interest to the undergraduates, and therefore, should be included in undergraduate conferences. Finally, the students greatly appreciated the awards ceremony.

Concluding Remarks

As a result of the success of this conference, discussions have started between the Colorado School of Mines and Colorado State University (CSU) concerning next years Front Range Undergraduate Mathematical Sciences Conference. Plans are also now in place to begin a sequence of joint undergraduate mathematics seminars at each campus during the academic year.

Barbara M. Moskal, Graeme Fairweather and Scott Strong

2nd Annual Pikes Peak Regional Undergraduate Mathematics Conference at Colorado College
Saturday, February 26, 2005

Funding from the MAA Undergraduate Mathematics Conferences will help provide support for the second annual Pikes Peak Regional Undergraduate Mathematics Conference (PPRUMC). It will be held February 26, 2005 in Colorado Springs at Colorado College. The PPRUMC is a one-day mathematics conference that will be held each spring in one of four institutions in the Pikes Peak region of Colorado. The host institutions include: Colorado College (CC), Colorado State University-Pueblo (CSU-Pueblo), University of Colorado at Colorado Springs (UCCS), and the United States Air Force Academy (USAFA).

The focus of the conference is to give undergraduate mathematics students the opportunity to present their own classroom, independent study, research, or REU projects in a professional setting. This is also an occasion for students to become acquainted with other students, to become aware of undergraduate opportunities in mathematics and to investigate the possibility of graduate school.

Faculty, please encourage your students to present at the second Pikes Peak Undergraduate Research Mathematics Conference. Below is the anticipated schedule.

9:00 - 9:15	Registration
9:15 - 9:30	Welcome & Opening Remarks
9:30 - 10:20	Keynote Speaker: **Joan P. Hutchinson** *"When Three Colors Suffice"*
10:30 -11:50	Parallel Sessions (each session will be 15 minutes with 5 minutes in between sessions)
12:00 -1:00	Lunch (Free to presenters)
1:00 - 2:00	Panel on Careers in Mathematics *"Mathematics -- You're Hired"*
2:00 - 4:30	Parallel Sessions (each session will be 15 minutes with 5 minutes in between sessions)
4:30	Closing Remarks
5:30	Optional pizza & ice cream party at a local establishment

Travel funds are available for students traveling longer distances. For more information about travel funds or the conference contact **John J. Watkins** at jwatkins@coloradocollege.edu.

Funding through MAA NSF – RUMC (NSF Grant DMS – 0241090)

Pikes Peak Regional Undergraduate Mathematics Conference

Registration Form

Name_____ **Student** __ **Faculty** __
Affiliation_____
Mailing Address _____
_____
E-Mail Address_____
Phone Number_____

STUDENT PRESENTATIONS
Faculty Sponsor & E-Mail_____
_____

Project/Research Title_____
_____

Abstract (100 words or less)_____
_____
_____
_____
_____
_____
_____
_____

Special Requests (equipment, schedule, diet, etc.)_____
_____
_____
_____

PLEASE RETURN THIS FORM OR AN E-MAIL EQUIVALENT TO:
(Note: e-mail submissions are strongly preferred)

John J. Watkins
Department of Mathematics
Colorado College
14 East Cache La Poudre Street
Colorado Springs, CO 80903

jwatkins@ColoradoCollege.edu

Funding Through MAA NSF-RUMC
(NSF Grant DMS-0241090)

University of Northern Colorado to Host 2005 Meeting

The Program Committee is pleased to announce the results of its planning for the 2005 Spring Section Meeting, to be held at the University of Northern Colorado on April 15 -16. A special theme of the meeting will be collaborations between mathematicians and mathematics education researchers. To launch this theme, a workshop entitled **Collegiate Mathematics Education Research** will take place on Friday morning from 9:00 to 11:30 am. This workshop will focus on three strands: (1) finding existing collegiate mathematics education research; (2) understanding collegiate mathematics education research; and (3) becoming involved in collegiate mathematics education research. Registration is limited to 22 participants and the registration fee is $5.00 per person.

In keeping with tradition, the meeting will officially open Friday afternoon with a special address by our most recent Burton W. Jones Distinguished Teaching Award Recipient, **Dr. Don Teets** of the South Dakota School of Mines and Technology. In his talk *Gauss and Gauss Again,* Dr. Teets will present a collection of examples of how the subject of celestial (orbital) mechanics fits perfectly into the standard undergraduate mathematics curriculum, and also provides a wealth of research opportunities and student projects. Dr. Teets' work in this area began a few years ago, after reading a short paper written by Carl Friedrich Gauss on the subject of celestial mechanics. What started as a project to answer the simple little question, "Who invented the method of least squares?" turned into a gold mine of mathematics research and teaching opportunities. One of his recent papers in this area (co-authored with SDSMT's Karen Whitehead) was awarded the MAA's Carl B. Allendoerfer award for expository excellence. We look forward to an enlightening and entertaining talk by Dr. Teets!

This year's Invited Keynote Speaker will be **Dr. Jean Bee Chan** of Sonoma State University. Dr. Chan currently serves as the Second Vice-President of the MAA. Dr. Chan will deliver the Friday Banquet Address, about magic squares and hexagons: *There is Magic in a Hexagon* in addition to Saturday's Keynote, *How Should We View an Art Gallery?* The Keynote address centers on answering the question: How many paintings can we view from any one point in an art gallery? After a brief history and proof of the Art Gallery Theorem for polygonal galleries, such galleries will be generalized to arbitrary closed and connected sets in the plane. Dr. Chan will close by describing art viewed via arcwise convex arcs in simply connected and compact galleries and offering some open problems in this area.

A special feature of this year's meeting will be a **joint panel discussion** with the **Colorado Council of Teachers of Mathematics**. This discussion will bring together teachers from each of the different levels of K-16 education to examine the theme: **Developing Algebraic Thinking: A journey from Pre-school to College**. CCTM will later be hosting (in Fall 2005) a Regional NTCM Conference on this same theme.

Another exciting feature planned for this year will be a **Mathematics Awareness Month Undergraduate Poster Session**. Organized by **Kyle Riley** of the South Dakota School of Mines and Technology, the session will have a general theme related to mathematics awareness month. Prizes will also be offered for Best in Show, Best Use of Mathematics and Most Creative. More information about the session can be found on page 14 of this newsletter. Please encourage your students to take part in this opportunity.

Rounding out the scientific program will be talks contributed by **intelligent, involved and inspirational people like you!** Information on submission guidelines can be found in the **Second Call for Papers** and **Speaker Response Form** on pages 17 and 18 of this newsletter.

Finally, **MAA books** will again be on display at the meeting, with the opportunity to purchase books at a discount **below membership prices**! Not only does this save you money, but also the section receives a 10% "rebate" on all orders placed at the meeting. We also hope to have textbook publishers and other vendors available on-site. ***Please encourage your book reps to contact Program Chair Shandy Hauk (shandy.hauk@unco.edu) early to make arrangements for this event.***

Second Call for Papers

The **deadline** for submission of abstracts for the 2005 Spring Section Meeting is **March 4, 2005.** Proposals received from students and MAA members after this date will be scheduled on a first-come, first-scheduled, space-available basis. Proposals from non-members sponsored by MAA members must be received by the deadline.

Although talks on all topics mathematical are welcome, special sessions are being organized around the following themes:

Interesting Ideas in Number Theory

Organized by Jane Arledge (arledge@mesastate.edu) and Rob Tubbs (robert.tubbs@colorado.edu)

In this session, we will share interesting tidbits of knowledge and explore connections in the broad areas of number theory and geometry. Talks should be addressed to general mathematics faculty.

History of Mathematics and Its Use in Teaching

Organized by Janet Barnett (janet.Barnett@colostate-pueblo.edu)

This session invites talks on historical topics and their use in teaching mathematics, especially in courses other than a history of mathematics course.

Preparation of Future College Mathematics Faculty

Organized by Shandy Hauk (shandy.hauk@unco.edu)

Current programs and future directions for collegiate teaching preparation. Could include presentations on working with math graduate students as they become undergraduate teachers; programs with part-time and adjunct faculty; work with new, tenure-track faculty. Programs and goals at 2-year and 4-year undergraduate institutions as well as in master's and Ph.D. granting departments.

Student Papers

Organized by Shandy Hauk (shandy.hauk@unco.edu) and Jody Novak (Jodie.novak.unco.edu)

Are you supervising a student research project? Encourage your student to present their results at the meeting! Registration is free for all students, and student speakers receive a complimentary one-year membership in the MAA, including the journal of their choice.

The default talk length will be 20 minutes, with every effort made (within the constraints of the schedule) to accommodate requests for longer talks and other scheduling preferences. Please submit special requests early.

For non-electronic submissions, please use the Speaker Response Form located on the following page. **E-mail equivalents of this form are encouraged!** Please be sure to include all requested information if using e-mail.

Please direct questions and suggestions about the program, including ideas for additional panel discussions or special sessions, to Program Chair Shandy Hauk at Shandy.Hauk@unco.edu or 970 - 351-2344.

Other Meeting Information

Drs. Richard Grassl and Jeff Farmer cordially invite department chairs to join them in an open discussion of common concerns, curricular or otherwise, at a special **Luncheon for Mathematics Department Chairs**, on Friday, April 15, 11:40 – 12:50. Further information, including luncheon cost, will be mailed to chairs later this spring.

The Program Committee cordially invites all meeting participants to attend the **Friday Evening Reception** to be held in the University Center Panorama Room on the University of Northern Colorado Campus. The **Friday Evening Banquet and Awards Ceremony** will follow the reception at the same location. Please note that banquet reservations must be received by April 11 to guarantee availability.

MAA Publications will again be available at special discounts (**below membership prices!**) on both Friday and Saturday, along with **Section Logo Shirts**. Remember, MAA returns 10% of all proceeds from book sales at our meeting to the section! Please note that *only credit cards and checks* (no cash) will be accepted for MAA book purchases, with *all orders shipped* at no additional charge.

Preliminary 2005 Meeting Schedule

Friday, April 15

9:00 - 11:30 **Workshop on Collegiate Mathematics Education Research**
Dr. Shandy Hauk and Dr. Nat Miller

11:40 - 12:50 **Luncheon and Open Discussion for Department Chairs,**
University Center, UNC Campus
Hosts: Dr. Richard Grassl and Dr. Jeff Farmer
All Department Chairs in the section are encouraged to attend;
Further information, including luncheon cost, will be mailed to chairs in March or early April.

12:30 - 4:00 **Registration, Publisher Exhibits and MAA Book Sales**

1:00 - 1:10 **Opening Remarks and Welcome**

1:15 - 2:00 **Burton W. Jones Distinguished Teaching Award Invited Lecture**
Gauss and Gauss Again
Dr. Don Teets, South Dakota School of Mines and Technology

Abstract A few years ago, I read a short paper written by Carl Friedrich Gauss on the subject of celestial mechanics. What started as a project to answer the simple little question, "Who invented the method of least squares?" turned into a gold mine of mathematics research and teaching opportunities. In this talk, I will present a collection of examples of how the subject of celestial (orbital) mechanics fits perfectly into the standard undergraduate mathematics curriculum, and also provides a wealth of research opportunities and student projects.

2:10 - 4:20 **Parallel Sessions** - Contributed Papers, Special Sessions & Panels

4:30 - 5:30 **MAA – CCTM Joint Panel Session**
Developing Algebraic Thinking: A Journey from Pre-school to College

5:45 - 6:15 **Departmental Liaison Meeting**
Please forward agenda items to any section officer by April 8.

6:15 - 7:00 **Reception** and
Mathematics Awareness Month Undergraduate Poster Contest
University Center 3rd Floor Panorama Lounge, UNC Campus
Poster Contest Organizer: Dr. Kyle Riley,
South Dakota School of Mines and Technology

7:00 - 9:30 **Banquet and Awards Ceremony**
University Center 3rd Floor Panorama Room
UNC Campus
Banquet Address:
There Is Magic in a Hexagon
Dr. Jean Bee Chan, Sonoma State University

Saturday, April 16
MAA Book Sales

8:00 - 8:50 **MAA Rocky Mountain Section Business Meeting**
Please forward agenda items to any section officer by April 8.

9:00 – 10:00 **Saturday Keynote Address:**
How Should We View an Art Gallery?
Dr. Jean Bee Chan, Sonoma State University

Abstract How many paintings can we view from any one point in an art gallery? After a brief history and proof of the Art Gallery Theorem for polygonal galleries, such galleries will be generalized to arbitrary closed and connected sets in the plane. Next, we will view art via arcwise convex arcs in simply connected and compact galleries. The talk will conclude with some open problems in this area.

10:10 – 1:00 **Parallel Sessions** - Contributed Papers, Special Sessions & Panels

Watch for regular meeting updates at
www-math.cudenver.edu/~maa-rm

Mathematics Awareness Month
Undergraduate Poster Session Contest
Rocky Mountain Section Meeting, April 2005

Schedule and Location: During the general reception on Friday night.

This year we will hold an undergraduate poster session contest during the April meeting of the Rocky Mountain Section Meeting of the MAA. Entries in the contest will try to meet the goal of creating awareness of mathematics to a general audience.

Theme: **Mathematics Could Save Your Life** – Poster entries should give examples, or illustrations, of how mathematics has played a role in saving lives. Math is valuable tool in several applications where lives are at stake: severe weather forecasting, medical imaging, public safety, are just a few examples.

Prizes: Prizes will be evaluated by a team of judges (each entry can win **at most** one prize)

- **Best in Show** ($50) – The entry that best adheres to the theme and is the best example for creating awareness of mathematics in a general audience.
- **Best Use of Mathematics** ($50)
- **Most Creative** ($25)

Judging: Judging will involve a team of three faculty and three students from institutions that are members of the Rocky Mountain Section of the MAA.

Rules:

- At most one entry from each institution.
- Entries must be the sole production of students.
- Presentation format is a poster session.
    - All entries must be self-contained (internet connections and possibly power outlets will not be available and space will be limited)
- The scores from any judge directly affiliated with an entry will automatically be one of the scores dropped.
- At most one judge from any individual institution.
- Awards will be announced during the banquet.

Register: Space may be limited so be sure to register (**registration is absolutely free!**). To register, or to volunteer as a judge, send an email to Kyle.Riley@sdsmt.edu with the name of your institution and the name of a faculty member that will act as advisor.

For more information, visit
http://www.mcs.sdsmt.edu/~kriley/pubinfo/maa/poster.html

Attention Math Students!!

How many paintings can we view from any one point in an art gallery?
Who invented the method of least squares?
How can mathematics save your life?
What magic is there in a hexagon?

Learn the answers to these questions and more at

The Mathematical Association of America's
Rocky Mountain Section
2005 Annual Spring Meeting
University of Northern Colorado, Greeley
Friday, April 15 and Saturday, April 16

PROGRAM HIGHLIGHTS INCLUDE:

Undergraduate student paper sessions

Interested in presenting the results of your research project at a professional conference? This is a great opportunity to share ideas and meet other math students! All student speakers receive a complimentary one-year MAA membership, including a subscription to a journal of your choice.

Reception and Mathematics Awareness Month Undergraduate Poster Session

Poster Contest Theme: **Mathematics Could Save Your Life**

Cash Prizes for *Best in Show*, *Best Use of Mathematics* and *Most Creative*

Poster Contest Organizer: Dr. Kyle Riley; e-mail Kyle.Riley@sdsmt.edu

Plenary Talks by Nationally Recognized Teachers and Scholars

Gauss and Gauss Again
Dr. Don Teets, South Dakota School of Mines and Technology
2004 Burton W. Jones Distinguished Teaching Award Recipient

How Should We View an Art Gallery? and *There Is Magic in a Hexagon*
Dr. Jean Bee Chan, Sonoma State University
Second Vice-President of the Mathematical Association of America

Information on Research Experiences, Career and Graduate School Opportunities

MEETING REGISTRATION FOR STUDENTS IS FREE!!!
Friday evening banquet fees are $24 per person.

To register, simply complete the form on the reverse, and return it to the indicated address.

DON'T FORGET TO SEND IN YOUR
PRESENTATION ABSTRACT WITH YOUR REGISTRATION
TO BE INCLUDED IN THE STUDENT PAPER SESSIONS!!!

Questions? Talk with one of the mathematics faculty at your school, or contact Student Session Organizer Dr. Shandy Hauk at shandy.hauk@unco.edu

For more details and highlights of the meeting, including local hotel information, visit the Rocky Mountain Section web site at www-math.cudenver.edu/~maa-rm.

Student Registration and Speaker Form

THE MATHEMATICAL ASSOCIATION OF AMERICA
ROCKY MOUNTAIN SECTION ANNUAL MEETING
April 15 - 16, 2005; University of Northern Colorado, Greeley

REGISTRATION INFORMATION

Last Name	First Name	
Institution		
Address		
City	State	ZIP
Email Address		
FAX	Phone:	
Are you an: Undergraduate student? _____ Graduate student? _____		

Friday Banquet Fees ($24.00 per person)

Please indicate the number of meals of each type. (Spouses and friends are welcome.)

_____ Sautéed Chicken Breast with Pineapple Jicama Salsa (default choice)
_____ Poached Salmon with Dill Sauce
_____ Vegetable Risotto

___ **Total Enclosed**

PRESENTATIONS: Deadline for Submission: March 4, 2005
The following can be e-mailed to Professor Shandy Hauk at shandy.hauk@unco.edu

Name of Faculty Sponsor:
Special Equipment Needs: (Overhead projectors will be available in all presentation rooms)
Schedule Preference: FRIDAY AFTERNOON _____ SATURDAY MORNING _____ NO PREFRENCE ____
PLEASE TYPE YOUR TALK TITLE AND ABSTRACT BELOW, OR ATTACH AN EXTRA PAGE. (Abstracts must be limited to 100 words or less)

Please make banquet checks payable to:
University of Northern Colorado
(indicate "MAA" on item line)
and return form with payment to:

Professor Shandy Hauk
Department of Mathematical Sciences
University of Northern Colorado
Greeley, CO 80639-0001

Speaker Response Form - Due 4 March 2005

Speaker Name _____

Affiliation _____

Mailing Address (Please include affiliation if needed for U.S. mail)

_____

_____

Email Address _____ Phone Number _____

Faculty Sponsor* _____

MAA Member Sponsor** _____

Title: _____

Abstract (100 words or less):

Is this talk intended for any of the following special sessions?

Interesting Ideas in Number Theory _____
History of Mathematics _____
Preparation of Future College Mathematics Faculty _____
Student Paper Session _____
Students: Are you a graduate or undergraduate? _____

Special Equipment Needs: _____
Schedule Preference Request: _____
Special Talk Length Request: _____

PLEASE RETURN THIS FORM OR AN E-MAIL EQUIVALENT TO:
(Note: e-mail submissions are strongly preferred.)

Shandy Hauk
Department of Mathematical Science
University of Northern Colorado
Greeley, CO 80639-0001

Shandy.Hauk@unco.edu

* For student speakers only ** For non-MAA members/non-students only

MAA ROCKY MOUNTAIN SECTION MEETING REGISTRATION FORM
April 15 - 16, 2005; University of Northern Colorado

MEETING REGISTRATION FORM **NOTE: For pre-registration discount, form must be received by April 11.**

Last Name	First Name	
Affiliation (for badge)		
Address		
City	State	Zip
E-mail address:		
Phone:	FAX:	

Please check all that apply:

Memberships: __ MAA __ AMS __ AMATYC __ NCTM __CCTM __Other:_____

Affiliation: __2-year college faculty __4-year college faculty __University faculty

__High school teacher __ Post-doctoral Fellow __ Business/Industry/Government

__ Undergraduate student __Graduate Student

Fees:

_____ Student Registration ($0)

_____ Non-Student Registration ($12 before 4/11, $20 after)

_____ Collegiate Mathematics Education Research Workshop ($5 per person)

_____ Friday Banquet ($24 per person, spouses and friends welcome)
Banquet reservations must be received by 4/11 to be guaranteed.
A limited number of tickets will be available onsite.

Please indicate the number of meals of each type.

_____ Sautéed Chicken Breast with Pineapple Jicama Salsa (default choice)
_____ Poached Salmon with Dill Sauce
_____ Vegetable Risotto

_____ Voluntary Section Dues Contribution ($10 suggested)
Voluntary section dues contributions are used to support special initiatives such as the Student Recognition and Section Activity Grant Programs. Contributors will receive a letter for their financial records.

_____ **Total Enclosed**

Please make checks* payable to: **University of Northern Colorado** (indicate **MAA** on item line).

Return form with payment to: **Shandy Hauk - CB 122**
Department of Mathematical Sciences
University of Northern Colorado
Greeley, CO 80639

shandy.hauk@unco.edu

* Please note that there will be a $17.00 charge for returned checks.

Meeting Accomodations, Directions and Maps

The following motels have established special rates for the conference. These rates are subject to availability, and are only guaranteed through March 15, so please make your reservations as soon as possible by calling the motel directly. Make sure to state that you are with the **MAA group** to obtain the lower rate.

All motels listed are between 1.5 and 2 miles from campus. All except the Sleep Inn are on the south side of Highway 34 as you approach Greeley from the west. The Sleep Inn is on the west side of Highway 85 as you approach Greeley from the south.

Country Inn and Suites
2501 West 29th Street
Greeley, CO 80631
(970) 330-3404
$67.50 single/double

Fairfield Inn by Marriott
2401 West 29th Street
Greeley, CO 80631
(970) 339-5030
$62.00 single/double

Sleep Inn
3025 8th Ave
Evans, CO 80620
(970) 356-2180
$62.00 single/double

Greeley Days Inn
2467 W. 29th Street
Greeley, CO 80631
(970) 330-6380
$55.00 single $58.00 double

Holiday Inn Express
2563 West 29th Street
Greeley CO 80631
(970) 330-7495
$69.95 single/double

Super 8 Motel
2423 West 29th Street
Greeley, CO 80631
(970) 330-8880
$50.00-$55.00 (depending on room type)

Directions

From the south:

Take I-25 NORTH to EXIT 257-A. Bear right onto State Highway 34, heading EAST. Stay on Highway 34 EAST for about 15 miles (this includes continuing on Highway 34 "By-Pass," do NOT take the "business route" exit). At 11th Avenue turn LEFT (NORTH). Go about 3/4 of a mile. Turn RIGHT on 22nd St and then turn LEFT into the University Center Parking Lot. On FRIDAY, you must BUY A $2 PARKING PASS from one of the vending machines in the lot. There is no charge for parking on Saturday.

From the north:

Take I-25 SOUTH to EXIT 257-A. Ramp curves sharply to the right and empties onto State Highway 34, heading EAST. Immediately move to the center lane (the right-most lane goes back onto I-25). Stay on Highway 34 EAST for about 15 miles (this includes continuing on Highway 34 "By-Pass," do NOT take the "business route" exit). At 11th Avenue turn LEFT (NORTH). Go about 3/4 of a mile. Turn RIGHT on 22nd St. and then turn LEFT into the University Center Parking Lot. On FRIDAY, you must BUY A $2 PARKING PASS from one of the vending machines in the lot. There is no charge for parking on Saturday.

University of Northern Colorado, Greeley, CO
MAA Rocky Mountain Section Meeting, April 15 – 16, 2005

Parking available in BLUE LOTS for $2 on Friday, April 15th.
Permit dispensers located at RED Xs.
No charge for parking after 5pm or on Saturday.

To State Route 34 "Bypass"

Red brick and sandstone building is **Ross Hall** where the meeting will be held.

Across 11th Avenue from Ross Hall is the **University Center** with the Panorama Room on the top (3rd) floor.

Grants Available

Section Activity Grants Available

Applications for Section Activities Grants are again being accepted to assist Section members with projects in support of the Section Mission. Proposals may request up to $500; matching funds are preferred, but not required.

The project director(s) must be a current member(s) of MAA, and the proposal must be clearly tied to one or more of the Rocky Mountain Section Mission Goals. A copy of these goals appears on the inside back cover of this newsletter. All applications must include the following:

(a) Description of project (no more than one page);

(b) Statement of how project supports Section Goals (no more than one page);

(c) Estimated budget, including description of matching funds available, if any;

(d) Vitae of project director(s).

Upon completion of the project, the director(s) of the funded projects are required to file a brief report (no more than one page), and to present a project report at the next meeting of the Section.

Two non-officer members of the Section will review applications; the Executive Committee on the basis of the reviewers' reports will make final funding decisions. Although applications are accepted at any time, please note that notification of funding decisions may take up to two months following receipt of the application by the section secretary.

Student Recognition Grants Available

The establishment of a Student Recognition Grant Program was approved by the section membership at the 2003 Annual Business Meeting. In support of this program, the Section will set aside $500 every calendar year. From these monies, the Section will make grants for the purpose of recognizing superior achievement in mathematics on the part of (1) students enrolled in post-secondary institutions within the geographic region served by the Section and (2) high school students whose school districts, or other appropriate political subdivisions, substantially intersect the geographic region served by the Section.

Proposals for such grants must

1. Originate from a member of the Rocky Mountain Section of the Mathematical Association of America on behalf of an agency, institution, or organization whose stated purposes are consistent with recognizing or encouraging superior academic achievement at the high school level;
2. Be in the hands of the Chair of the Rocky Mountain Section no later than March 15 of the year in which the proposed recognition is to be made;
3. Include the criteria under which superior achievement in mathematics is to be recognized, together with the time and the manner of such recognition;
4. Report, insofar as possible at the time of the proposal, other potential sources of support together with proposals or requests made or intended; and
5. Be limited to a maximum amount of $250.

The Executive Committee will review all proposals for grants under this policy and will make such grants as, in its sole judgment, it deems proper. In keeping with the section mission, funding priority will be given to grants that include recognition of undergraduate students. Funding decisions will be announced no later than the Annual Business Meeting of the Section. Monies not expended during any particular year shall revert to the Section's general fund.

Section Logo Shirts Available

First unveiled at the 2002 Spring Section Meeting in Laramie, Rocky Mountain Section Logo shirts are now available in two styles: a **long-sleeved button-front denim shirt** and a **short-sleeved white polo shirt**. Both styles are 100% cotton and feature the section logo in high-quality color embroidery on the front left.

In order to promote awareness of the MAA and the Rocky Mountain Section, prices have been set in order to recover production costs, just **$35 for denim** and **$30 for polo**. Proceeds, if any, will be used to support section activities.

If you are interested in obtaining one of these special shirts for yourself, a colleague, a friend, a student, or a loved one, please contact the section secretary**, Janet Barnett,** with information on desired quantities and sizes.

About Our Logo

The logo for the Rocky Mountain Section of the Mathematical Association of America was created by Mark Petersen in 2001. A graduate student in the Applied Mathematics Department at the University of Colorado at Boulder at that time, Mark says of his design:

"The mountain symbols were chosen because analysis is the foundation for all of mathematics. The equation $e^{i} + 1 = 0$ must rank among the most beautiful formulas in mathematics. It connects the five most important constants of mathematics with the three most important operations - addition, multiplication, and exponentiation. These five constants symbolize the four major branches of classical mathematics: arithmetic, represented by 0 and 1; algebra, by *i*; geometry, by ; and analysis, by *e*. (Quoted from Eli Maor's *e, The Story of a Number*). I chose to portray this equation as a train because rail has historically been the life blood of the American West, and trains are complementary to any mountain scene."

Meetings Calendar

MAA Rocky Mountain Section Meeting, University of Northern Colorado; April 15-16, 2005

NCTM National Meeting, Anaheim; April 6-9, 2005
MAA MathFest, Albuquerque; August 4-6, 2005
AMATYC National Conference, San Diego; November 10-13, 2005

Joint Mathematics Meetings, San Antonio; January 12-15, 2006
NCTM National Meeting, St. Louis; April 26-29, 2006

Joint Mathematics Meetings, New Orleans; January 4-7, 2007
Joint Mathematics Meetings, San Diego; January 6-9, 2008

The Rocky Mountain Section of
The Mathematical Association of America

Burton W. Jones Award
for Distinguished College or University Teaching of Mathematics

Nomination Form

Name of Nominee _____
(First name first)

College or University Affiliation _____

College or University Address _____

City _____ State _____ Zip: _____

Is the nominee a member of the MAA? _____

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)? _____

In the space below, please briefly describe the unusual personal and professional qualities of the nominee that contribute to her or his extraordinary teaching success.

Name of Nominator) _____
(first name first)
Address of Nominator _____

_____

Email Address _____

Telephone: Work _____ Home _____ Fax _____

Nominator's Signature _____

Nomination form should reach Section Secretary by 1 December 2005.
Complete nomination materials should reach Section Secretary by 29 January 2006.
Please consult section webpage (http://www-math.cudenver.edu/~maa-rm/) for complete guidelines and address of Section Secretary.

Voluntary Section Dues

Many thanks to those members who have made a voluntary dues contribution to the section along with their Spring Meeting Registration!

Although the section has found itself in good financial health in recent years, additional funds are always needed in order to pursue special initiatives suggested by the membership. The successful John Fauvel Memorial Conference and William Dunham Special Lecture, both supported in part by the Section Activity Grant program, provide excellent examples of what can be done with even a small amount of funding to support our section mission and goals.

A voluntary section dues contribution from you now can help build up funds in support of similar initiatives!

To submit your dues, simply return the coupon below with a check for any amount you wish - every little bit will help, and all contributors will receive a letter acknowledging the contribution for their financial records.

MAA Rocky Mountain Section Voluntary Dues Contribution Form

Name _____

Address _____

_____ **ZIP** _____

Please indicate in the space provided how you would like your dues to be used:

_____ Undergraduate Student Initiatives
_____ Graduate Student Initiatives
_____ Burton W. Jones DTA Fund
_____ Section Activity Grant Program
_____ Wherever needed most
_____ Other: _____
_____ **TOTAL DUES PAID ($10 recommended)**

Please make check payable to: **MAA Rocky Mountain Section** and return to: Janet Barnett; MAA Rocky Mountain Section Treasurer; Department of Mathematics & Physics; Colorado State University - Pueblo, 2200 Bonforte Boulevard; Pueblo, CO 81001-4901.

MAA Rocky Mountain Section
Mission Statement

**To promote excellence in mathematics education,
especially at the collegiate level.**

Mission Related Goals

1. To foster scholarship, professional development, and professional cooperation among the various constituencies of the mathematical community within the region.

2. To foster the implementation and study of recent research recommendations for the teaching, learning and assessment of collegiate mathematics.

3. To support the implementation of effective mathematics preparation programs of prospective teachers at all levels.

4. To enhance the interests, talents and achievements of all individuals in mathematics, especially of members of underrepresented groups.

5. To provide recognition of the importance of mathematics, mathematical research and quality mathematics teaching, and promote public understanding of the same.

6. To provide regional leadership in the promotion of systemic change in mathematics education, and in the enhancement of public understanding about the needs and importance of mathematical research and education.