ALLEGHENY MOUNTAIN SECTION NEWSLETTER

Please share this newsletter with colleagues, and encourage them to join MAA.

Governor's Report
George Bradley, Duquesne University

I hope that everyone has survived the cold winter and that we have some nice weather by the time you read this.

New Orleans is a great city for a conference. Lots of delicious food, great music, places to shop, and beautiful architecture, as well as very friendly people. It would have been nice had the weather been more cooperative!

At the Governor's meeting, we learned that the MAA is in great shape. Both individual and institutional membership is up (although more members are always welcomed). The conversion to the new Association Management software is on track, MAA book sales of many quality books is doing well, the Digital Library is a success, new development programs have been put in place, and attendance is good at the joint meetings and MathFest. Several SIGMAA's (special interest groups) have been formed. The MAA officers and staff are excited about the many new programs being offered. I urge everyone to visit the MAA website at maa.org to learn about the programs.

A conflict of interest policy was discussed and should be read by anyone doing paid or volunteer work with the MAA.

The Akamai Foundation is going to sponsor a special program for students who participate in the USAMO. The top scorers in each state, the District of Columbia, and the US Territories will be recognized at a reception at a prominent place in each locale. The highest male and female scorer in each locale will receive a scholarship. The top three finishers in the USAMO will receive much larger scholarships. Next year the USAMO will be held at a central site that will include talks, a banquet, a social, and some test preparation. Currently, students take the exams at their home institutions, often alone except for a proctor. A much expanded summer program is also planned.

The eighth, tenth, and twelfth grade mathematics exams have shown increased participation.

I would like to encourage members to take a more active role in the MAA. Section offices need to be filled each spring. The section meeting is full of interesting activities. On the national level, there are more than 100 committees that could benefit from representation by members of our section. I have found my involvement with the MAA at the section and national levels to be incredibly rewarding. I would be glad to talk to anyone about serving as a section officer or as a member of a section or national committee. And I urge you to plan to attend our section meeting in April, the MathFest in Madison this August, and the 2002 Joint Meetings in San Diego in January.

Message from the Chair
Tom Keagy, Duquesne University

Three years ago when I agreed to serve as Chair-elect of the Section I had no idea how personally rewarding my experience as an officer of the Section would be. My original motivation for agreeing to serve was to give something back to an organization that had given me so much over the years. I have been attending MAA section meetings since my graduate school days, and I have always felt nurtured and uplifted following the annual spring gatherings. During the years when I presented research talks, I always left the meetings with a new sense of purpose as a result of interest expressed in my work by colleagues, many of whom I had never met before. Over the years when I have focused my attention at the meetings on attending research talks of faculty colleagues, I have always found myself energized by the enthusiasm they have poured into these presentations. At times when I have questioned my own abilities as a motivator and teacher, I have always found inspiration in the pedagogical talks and informal conversations that naturally follow. When I have allowed myself to lose my focus on students, I have always found that attending student talks helps me re-center my attention on what really matters in education.

Over the past two years I have been fortunate to be associated with a number of you who have worked very hard to build our Section. Any time you begin mentioning names there is a danger of forgetting someone, and I apologize in advance to those whom I inadvertently omit from this short list: With the help of a $3,000 grant from the national NExT organization, Barbara Faires, Beverly Michael, and Tami Hummel have initiated what is certainly among the leading Section NExT programs in the nation. Quick action on the part of Connie Yu and others resulted in our section being selected to host one of the first joint MAA and NSF/DUE sponsored grant writing workshops. Barbara Power, Tami Hummel, and John Zhang have organized and planned panel discussions, identified and recruited outstanding outside speakers, and coordinated faculty presentations. Cheryl Leech has led our efforts to involve more students in our section activities and Bob Vallin has coordinated our puzzle contests. Dave Wells agreed to assume the task of Newsletter Editor when Dan Hrozencik stepped aside. Without them and Francisco Alarcon, our Electronic Communications Coordinator and Past Chair of the Section, none of us would have any idea what is happening in the Section. George Bradley has kept the Section connected to the national MAA as our Governor, and Dick McDermot has kept us connected to the past as our Historian.

My personal reflections of the past two years would not be complete without a special thanks to Connie Yu, who has so ably served as the section Secretary-Treasurer and as my guide and valued friend during my tenure as Chair of the Section. She has informed the Executive Committee that she will be stepping down from her official duties at the close of the 2001 Spring Meeting, which appropriately enough will be held on her home campus. I know everyone in the Section joins me in thanking her for a job well done!

To John Zhang, who will assume the duties of Section Chair after the Spring Meeting, I extend my congratulations and best wishes. I would only warn him of one thing: Be careful assuming that your tenure as Chair of the Section will be a time when you can give something back to the Section. Instead, expect that you will end your two year tenure even more in debt to your colleagues for what they will have given you. My thanks go out to all members of the Section for allowing me the opportunity to serve as your Chair. You have given me much - in fact, so much that now I will never be able to pay you back! See you in Altoona.

Spring Meeting

Friday, April 6, 2001

Time	Event		
1:00 - 5:00	Registration		
1:00 - 2:00	Section Officers Meeting		
2:00 - 4:00	Grant Writing Workshop, Part 1*		
2:00 - 6:00	Book, Technology, and Graduate Program Exhibits, Puzzle and Trivia Contests		
4:00 - 5:00	Invited Address: John Hamilton*		
5:00 - 5:30	Department Liaisons Meeting		
5:00 - 6:00	Social Hour, including Section NExT social gathering		
6:00 - 7:00	Dinner		
7:15 - 7:45	2000 Teaching Award Recipient Talk: David Falvo		
8:00 - 9:05	Student and Faculty Talks		
9:15 - 10:00	Breakout Sessions	Panel: Graduate Programs*	
		Panel: Planning and Evaluating Your Career with an Eye Toward Tenure*	
10:00 - ???	Pizza Party		

Saturday, April 7, 2001

Time	Event		
7:30 - 8:45	Buffet Breakfast		
8:00 - 8:45	Business Meeting (Note: The business meeting is open to everyone.)		
8:00 - 9:00	Registration		
9:00 - 12:00	Book and Technology Exhibit		
9:00 - 10:00	Breakout Sessions	Grant Writing Workshop, Part 2*	
		Panel: Keeping Your Career Going Under a Heavy Load*	
10:10 - 11:15	Student and Faculty Talks		
11:30 - 12:30	Invited Address: Frank Farris*		
12:30 - ???	Lunch		

* - Details about these events can be found elsewhere in this newsletter.

Events at the Spring Meeting

Invited Address: John Hamilton, *Building a Math Model of a Blur Filter*

Blur filters are often used in digital imaging systems to suppress the sampling artifact known as "aliasing". One type of blur filter is called a phase noise filter, which blurs the image by introducing random phase shifts into the image prior to its capture. In the process of designing such a filter, it is helpful to have a math model to predict the effect the filter would have on any given image.

The talk includes a brief description of digital cameras and a demonstration of the problem of color aliasing. Additional topics briefly described are: linear shift-invariant operations, the Fourier transform, and the modulation transfer function (MTF). An integral representation of an MTF is then analyzed and reduced to known functions and a single unknown autocorrelation function. The final portion of the talk discusses a computational method by which this unknown function can be approximated, and compares the resulting model to measured data.

John Hamilton is a graduate of Cornell University who received his Ph.D. in mathematics from Indiana University. In 1974 he accepted a position at the Kodak Research Laboratories, where he applied mathematics to various problems in graphic arts (printing), medical imaging, clinical

diagnostic imaging, and electronic digital imaging. He is currently developing image processing algorithms for Kodak's digital camera program and holds numerous patents in this and related areas.

Invited Address: Frank Farris, *The Edge of the Universe - Noneuclidean Wallpaper*

Perhaps you have heard the following argument: "The universe could not possibly have an edge, because if it did, the place on the other side would have to be part of the universe, too." In this talk we explore an interesting alternative. What if all matter, that makes up you and your measuring instruments, shrinks as it nears the edge, and shrinks in such a way that you could put your ruler end to end infinitely many times and still never reach the edge?

A 2-dimensional version of such an alternative is a model of noneuclidean geometry. We discuss the idea of wallpaper in general, showing images of euclidean wallpaper, and close with computer-generated images of wallpaper for inhabitants of this noneuclidean universe.

Frank Farris is a geometer who teaches at Santa Clara University, where he has won the David E. Logothetti Teaching Award. Interests include 2-surfaces in 4-space and symmetry. He serves as editor of Mathematics Magazine from 2001 through 2005 and hopes to continue its tradition of offering inspiration to readers interested in mathematics at the undergraduate level. Frank is also a singer who has portrayed on stage almost all the dim but endearing tenors in the light operas of Gilbert and Sullivan.

Grant Writing Workshop The meeting will feature a grant writing workshop led by Melinda Miller Holt, of Texas Women's University (mholt@twu.edu). The workshop will focus on the grant writing process, especially as it applies to the CCLI and ATE initiatives at NSF. Topics will include how to write and submit a grant proposal, where it then goes in the NSF directorate, how the NSF reviews such a proposal, what happens if it is accepted, and what to do if the proposal is rejected. Some recently funded proposals from NSF will be discussed as time permits.

Indicate on your meeting registration form whether you plan to attend the workshop. The cost is $15.

Panel Discussions The meeting will include several panel discussions.

"Graduate Programs", organized by John Zhang, will include graduate coordinators from several universities in the region and at least one graduate student. The session should provide a variety of useful information for students considering graduate study.

"Keeping Your Career Going Under a Heavy Load", organized by Barbara Power, will include perspectives from George Bradley, Barbara Faires, John Hamilton, Mike McConnell, and Joseph Previte.

"Planning and Evaluating Your Career with an Eye Toward Tenure", organized by Tami Hummel, should be of interest to graduate students who plan to teach, and to recently hired faculty.

Section NExT Events The Section, with support from Exxon/Mobil, sponsors sessions of special interest to the Section NExT fellows and provides some reimbursement for their expenses in attending the meeting. Of particular interest this year are the grant writing workshop and the panel on career planning and tenure. There will also be a social gathering of Section NExT fellows before dinner on Friday and a discussion at lunch on Saturday. Section fellows, watch for additional information on support as well as locations of the special activities.

Directions to Penn State - Altoona

These maps can also be found at http://www.aa.psu.edu/map/. Most meeting activities will occur in the Smith Building and the Community Arts Center (CAC). The appropriate parking lot is the CAC lot. For information on lodging, see page 7.

Summer Short Course

The Seventeenth Annual Summer Short Course of the Allegheny Mountain Section of the MAA will be offered on June 18-22, 2001 at Allegheny College, Meadville, PA. The course, entitled "The History of Algebra and Geometry", will be presented by Victor Katz of the University of the District of Columbia (vkatz@udc.edu, 202-274-5374). The course will emphasize how algebra and geometry have been closely related from their origin, and that one should always keep that in mind when teaching at all levels.

Monday, June 18
9:00-10:15 am: Elementary geometry: What did the Egyptians know and how did they figure it out?
10:45-12:00 noon: Algebra in old Babylonia: Geometric roots
1:30-3:00 pm: Using history in the mathematics classroom - precalculus courses
3:30 - 5:00 pm: Contributed papers

Tuesday, June 19
9:00 -10:15 am: Classical geometry: How did Euclid put it together?
10:45 - 12:00 noon: Quadratic equations in Greece and Islam: geometry or algebra?
1:30 – 2:45 pm: Reading original sources: Levi ben Gerson and induction
3:00 – 4:30 pm: Teaching a course in the history of mathematics – resources

Wednesday, June 20
9:00 - 10:15 am: Cubic equations: the true story
10:45 - 12:00 noon: Algebraic notation: Viete to Harriott to Descartes
1:30 - 3:00 pm: Using history in the mathematics classroom – calculus and later   courses
3:30 - 5:00 pm: Contributed papers

Thursday, June 21
9:00 – 10:15 am: Non-Euclidean geometry: How could it be "true"?
10:45 – 12:00 noon: The road to abstraction: groups
1:30 – 3:00 pm: Reading original sources: Lambert and non-Euclidean geometry
3:00 - 4:30 pm: Teaching a course in the history of mathematics – putting it together

Friday, June 22
9:00 – 10:15 am: The algebra and geometry of n-dimensional space
10:45 – 12:00 noon: The algebraization of mathematics in the twentieth century

Registration: $170 (includes course, banquet, picnic, daily refreshments)
Room and Board: $150 (includes single dormitory room and meals other than the above; for the span of a room for Sunday night, June 17, through lunch on Friday, June 22)

An application form appears elsewhere in this newsletter. To hold your place, a $25 deposit (check made payable to Allegheny Mountain Section of MAA) is requested with your application. The deposit will be refunded if you withdraw from the course at least one week before the course begins. The balance of the registration and room/board fees can be paid upon arrival at Allegheny College for the course. Directions to the Allegheny campus and other pertinent information will be sent to you by mid-May. If you have additional questions, please contact Ron Harrell (rharrell@allegheny.edu, 814-332-5344).

Lodging at the Spring Meeting

Ramada Inn (814-946-1631), $65, off I-99 at the Plank Road exit (also the location of the pizza party), must reserve by March 6

Hampton Inn (814-941-3500), $87, off I-99 at the Plank Road exit

Also in the area:
Comfort Inn (814-693-1800), $59.95
Days Inn (814-944-9661), $65
Holiday Inn (814-944-4581), $59 (mention
      Penn State to get this rate)

Altoona Area Attractions

This is a good year to consider bringing spouses and families to the meeting, since many activities of interest are available. The Penn State - Altoona campus will feature a theater production, "A View from the Bridge", on Friday night ($5.00). The Railroader's Memorial Museum and Horseshoe Curve National Historic Landmark are each open seven days a week. Information about shopping and other attractions can be found at http://altoona.com.

Other Section Summer Short Courses

North Central Section V. Frederick Rickey will be the lecturer at the North Central Section 2001 Summer Seminar, titled "The History of Mathematics". The seminar will be held July 24-27 on the campus of Bemidji State University in Bemidji, Minnesota. More information is available at http://ea.bemidji.msus.edu/mathcs/seminar2001/.

Ohio Section The Ohio Section has engaged William Dunham to present its 2001 Summer Short Course, titled "A Mathematical Sampler: 1669-1900", at Ashland University in Ashland Ohio, on June 27-29.

This workshop examines a collection of mathematical landmarks from the middle of the seventeenth through the end of the nineteenth centuries. The theorems are the original work of such towering figures as Newton, the Bernoulli brothers, Euler, Gauss, and Cantor and come from the fields of analysis, number theory, algebra, geometry, complex variables, and the theory of sets. They give historical perspective to topics encountered in college mathematics, and some can be transferred intact to the undergraduate classroom. Most importantly, these theorems represent the beauty of mathematics at its best.

Details about the course content, presenter, times, costs, lodging, etc., can be found at www.maa.org.Ohio (follow the Summer Short Course link) or at http://eagleweb.ashland.edu/~cswanson/maashort.htm.

Demos with Positive Impact
Lila F. Roberts, Georgia Southern U.
David R. Hill, Temple U.

Demos with Positive Impact is an NSF project to connect mathematics instructors with effective teaching tools. It is a web-based collection of instructional demonstrations for teaching mathematical concepts across the undergraduate curriculum. Demonstrations to accompany ideas and concepts are a requirement for effective instruction. What we have in mind is a vignette, incorporated within a lecture, that engages the learner on a level in addition to the dialogue of the instructor. In contrast to student activities such as projects or lab activities, these vignettes are intended to be presented by the instructor. Experienced instructors have private toolboxes of demos, conceptual approaches, or physical gadgets they use to encourage students to tune in to the mathematics. This rich but largely unharvested source of tried-and-tested ideas forms the basis for Demos with Positive Impact. We invite you to visit the website at http://www2.gasou.edu/facstaff/lroberts/demos.

The success of the project depends on contributions of good ideas for demos from our colleagues. Although we cannot give you any money for your ideas, we will acknowledge your contribution to this NSF project. We will accept good ideas in any

form: a description on paper, an electronic file, or you may use our web form. We will take your idea, for which you will receive full credit, and fit it into our database format. You may submit your demo online at the Demos with Positive Impact website or mail it to David R. Hill
Mathematics Department
Temple University
Philadelphia, PA 19122
(hill@math.temple.edu)
or Lila F. Roberts
Math. and Computer Science Department
Georgia Southern University
Statesboro, GA 30460
(lroberts@gasou.edu).

Section Mentoring Award

At the 2000 Spring Meeting of the Allegheny Mountain Section, the Section's first Distinguished Faculty Mentor of Undergraduate Mathematics Students Award was presented to Dr. Joseph Previte of Penn State - Erie, the Behrend College. Among the reasons cited for his selection was his supervision of several student research projects. As an advisor to the Penn State - Erie Math Club, he has also helped in organizing and supervising the students from his campus who attend the Section Spring Meetings. Congratulations to Dr. Previte on becoming the initial recipient of this award!

Nominating Committee Report
Kathy Taylor, Duquesne University

The Committee is pleased to present a complete set of nominees for the Section offices to be filled this year. Nominated to continue in their current positions are Short Course Co-directors Ron Harrell (Allegheny College) and Don Platte (Mercyhurst College), and Newsletter Editor Dave Wells (Penn State - New Kensington). Other nominees are Michael Berry (West Virginia Wesleyan College) for Second Vice Chair, and Robert Vallin (Slippery Rock University) for Student Programs Coordinator. Brief biographical sketches for Professors Berry and Vallin follow.

Michael Berry has a B.S. in Civil Engineering from the West Virginia Institute of Technology and a Master of Arts in Mathematics from Penn State University. He is currently a Professor of Mathematics at West Virginia Wesleyan College, where he also served as department chair for 23 years. He has taught for the West Virginia College of Graduate Studies and has created tests for regional and state high school math competitions. His current special interests include areas within the history of mathematics, problem solving, and technology in the classroom. He especially enjoys watching students in his Foundations of Mathematics course make the transition from manipulation to abstraction. Professor Berry currently chairs the Section's Distinguished Teaching Award Committee. A member of MAA for 34 years, he is also a member of AMS.

Robert Vallin is an Associate Professor of Mathematics at Slippery Rock University of PA. He has worked there since 1992, when he earned his Ph.D. from North Carolina State University. His research specialty is Real Analysis. His student-centered experiences include 7 years as Math Club faculty advisor and 2 years as the Coordinator of the Student Puzzle Contest at our MAA Regional Meeting. Professor Vallin lives in Slippery Rock with his wife and three children.

Registration for the 2000 Spring Meeting, Allegheny Mountain Section, MAA

$25.00 _x_   Registration (no registration fee for students)

$15.00 ___   Grant Writing Workshop

Friday dinner (Availability of meals is not guaranteed without preregistration.)

$11.25 ___   Florentine stuffed flounder (stuffed with spinach and ricotta cheese)

$11.25 ___   Chicken Kiev

$12.00 ___   Wine marinated steak with horseradish mushrooms

$6.75 ___   Saturday breakfast buffet

$6.15 ___   Saturday lunch (sandwiches with choice of 3: roast beef, turkey, ham, chicken salad, tuna salad; choice of 2: potato salad, pasta salad, macaroni salad, coleslaw; assortment of bread, rolls, and canned soda; takeout available)

$_____   total

Name: _____ College/Univ./Employer _____

Address: _____

Checks should be made payable to Allegheny Mountain Section, MAA. For refunds, contact Connie Yu (814-949-5275, xky@psu.edu) **before noon, March 23, 2001**. Please send this form and your payment to arrive by March 23, 2001. Send to:
Connie Yu, Department of Mathematics, Penn State - Altoona, Altoona, PA 16601

Registration Form for Faculty and Student Talks

Name: _____ College/Univ./Employer _____

Address: _____

Email: _____ Phone: _____

Title of talk: _____

Special equipment needed: _____
(Each room is equipped with chalkboard, overhead projector, and screen. Computers, VCRs, etc., are available with advance notification.)

Please send this form to arrive by March 23, 2001. Send to:
Tamara Hummel (faculty talks), Department of Mathematics, Allegheny College, Meadville, PA 16335 (thummel@alleg.edu)
Cheryl Leech (student talks), 19679 Chad Lane, Meadville, PA 16335 (cheryl_leech@hotmail.com)

Proceedings of this year's meeting will be published electronically. Submissions can be made to Francisco Alarcon at IUP (falarcon@grove.iup.edu, 724-357-2206). Send both a printed copy and a diskette. Submissions as email attachments are also acceptable.

Application Form
17th Annual Summer Short Course of the Allegheny Mountain Section of MAA
Sponsored by the Allegheny Mountain Section and Allegheny College
June 18-22, 2001
Presenter: Victor Katz, University of the District of Columbia

Name: _____ Department: _____

Institution: _____

Address: _____

_____

Telephone: (Office) _____ (Home) _____

email address: _____

Will you require on-campus housing? _____

Reasons for interest in the course:

Would you be interested in presenting a contributed paper during an afternoon session? _____
(The content does not have to relate to the topic of the short course. Answering yes does not
commit you to give a paper.) If yes, please give a brief description of the content:

With your application please include a check for $25, payable to Allegheny Mountain Section,
MAA. Mail by May 12, 2001, to:
Ron Harrell
Department of Mathematics
Allegheny College
520 N. Main St.
Meadville, PA 16335