EPADEL

maa.org/epadel

Eastern Pennsylvania
EPADEL
Delaware

A Message from Governor Kay Somers

This past summer's MathFest and the Board of Governors meeting on the day preceding MathFest drew inspiration from the backdrop of the beautiful Rocky Mountains in Boulder, CO. Although you won't get the mountains, you can find out about all the new and diverse opportunities within MAA by checking out MAA Online (www.maa.org). Look for information about the MAA's externally funded programs as well as new publications and even the opportunity to join a Study Tour abroad.

One of the actions of the Board of Governors at its July 30, 2003 meeting involved approval of moving the deadline for the national Haimo Awards for Distinguished College or University Teaching to March 1 (from February 1). The EPADEL Section will still use the two-tiered nomination procedure for nominating candidates for the EPADEL Section Distinguished Teaching Award, with the first deadline in November. (Look for more details elsewhere in this Newsletter!) Please consider honoring a colleague with an EPADEL Teaching Award nomination. Also, nominations for the first Henry Alder Awards for Distinguished Teaching by Beginning College or University Faculty are now being solicited and are due by December 15, 2003. These nominations are to be sent directly to national MAA Secretary Martha Siegel. Find details and forms at http://www.maa.org/News/062703alder.html .

There are now seven SIGMAAs (Special Interest Groups): RUME (Research in Undergraduate Mathematics Education, STATS-ED, BIG (Business, Industry, and Government), HOM (History of Mathematics), POM (Philosophy of Mathematics), EM (Environmental Mathematics), and WEB (Mathematics Instruction Using the Web). For more information, consult the webpage of any of the SIGMAAs; these are accessible from MAA Online.

Plan to join EPADEL colleagues and students for an exciting program at our upcoming meeting at Franklin & Marshal College on November 8, 2003.

A Message from President Annalisa Crannel

It seems these days that the common response to "how are you?" is not "fine", but "busy". We are living in an age in which constant activity is a badge of honor.

Mathematicians are fortunate in that much of our busy-ness is self-selected. We have some fixed professional obligations, it is true, but often the time and effort we spend on these is as much a matter of our own pride and standards as that of our employers. And the many extra things we do -- service to the community, volunteering in professional organizations, attending mathematical meetings -- is usually self imposed (although there is often external coercion involved!)

As the President of EPADEL, I've been extremely fortunate to work with many people who willingly volunteered to be just a little busier on behalf of the mathematics community. The list of people who have worked for love (of math) rather than money include speakers, local organizers of meetings, students paper competition judges, organizers of the student talks, newsletter editor, web editor, plus the volunteers who are responsible for publicity, our visiting lecture program, the distinguished teaching award, our section NExT, summer workshops, student chapters, and our small budget. Twice a year, while many people are still in bed, an amazing cadre of executive board members rises early on Saturday morning to gather and plan upcoming EPADEL meetings.

Probably the most overworked and under-glamorized job in the section is that of secretary/treasurer -- so here I'll give a big, public thank you to Cliff Wagner and his successor Barbara Bendl. The weight of our part of the world has rested on their shoulders.

It has been a privilege to be able to work with some of the most interesting, generous, quirky -- and yes, busy -- people in the EPADEL section. To each of them, I say Thanks! I wish them the best of bagels at Moravian.

Thanks to the excellent mathematical taste of our Vice President Dennis DeTurck, the upcoming fall meeting promises to be another great one. I hope each of you can take the time out of your busy schedules to enjoy mathematics and the company of your fellow mathematicians. See you on November 8!

Mark your calendars: Spring Meeting – Moravian College – April 3, 2004

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Attention Students

The EPADEL Section's Fall Meeting will be held at Franklin & Marshall College on November 8. A detailed program can be found elsewhere in this Newsletter. Become involved with the regional mathematics community and attend this meeting! The registration fee for students is only $2. In addition to the invited talks, students may find the MAA book exhibit a very interesting place to visit.

Student Talks

There will be two student contributed papers sessions in which students have an opportunity to give a mathematics talk. If you are interested in participating as a speaker, please check the Section's webpage at maa.org/~epadel. The deadline to submit an application to give a talk is October 27. If you missed the deadline, think of giving a talk at the spring meeting to be held at Moravian College on April 3, 2004.

Student Paper Competitions

The **EPADEL Section's Student Mathematical Papers Prize** Competition is available again this year. Papers on any mathematical topic are eligible. Entries must have been written by undergraduate students at schools in the EPADEL area. Papers may be expository or may present original research, and should be no more than about 20 pages in length. Jointly authored papers by undergraduate students are also eligible.

Each submission should include the author's name and address and the name of a faculty sponsor, and should be mailed by **May 15, 2004** to Dr. Samir Ouzomgi, Department of Mathematics Penn State - Abington College Abington, PA 19001, sxo2@psu.edu.

The papers will be judged during the summer. The winning author(s) will be recognized at the MAA EPADEL Section's fall 2004 meeting, and will receive a prize of $200.

Congratulations to **Bobby Kelly**, winner of the 2002 Competition for his paper 'Mathematics of Musical Rhythm.' Bobby wrote his paper while he was an undergraduate student at St. Joseph's University, where his faculty sponsor was Dr. Rachel Hall.

In addition to this competition, the nationally sponsored **Frank and Brennie Morgan Prize** for Outstanding Research (deadline is June 30) is definitely a place to show your mathematical abilities. Find further information at http://www.maa.org/awards/morgan_nom.html

MAA Student Chapters

Do you have an MAA Student Chapter on your campus? If you don't, consider starting one. You'll need a minimum of five students and a faculty advisor. For information contact Alicia Sevilla, EPADEL Student Chapters Coordinator, at sevillaa@moravian.edu.

Math Horizons

Have you seen Math Horizons? Math Horizons is a magazine for students interested in mathematics. It is full of interesting articles. If your school has a bulk subscription, make sure you get to see it. A student who joins an MAA Student Chapter can choose Math Horizons as a journal subscription.

Millersville University Math students win top research honors

Math majors Andrew Baxter and Stephen Weaver, both entering their junior year at Millersville University, were honored by the Mathematical Association of America (MAA) for their outstanding undergraduate research conducted during the spring 2003 semester. Fifty three undergraduates from across the USA presented research papers in nine juried student paper sessions held in Boulder Colorado from July 31 to August 2 during MathFest 2003, the annual summer meeting of the MAA. The best presentation in each session received a citation for excellence and a $150 cash award. Baxter and Weaver's presentation entitled "Periodic Orbits in Triangular Air Hockey," was cited as one of the nine best. Their research was directed by professors Dr. Ron Umble and Dr. Zhoude Shao.

The James P. Crawford EPADEL Teaching Award

In honor of his support of the EPADEL Section of the MAA and his exemplary career as a Mathematics Professor at Lafayette College, the Executive Council of the EPADEL section voted unanimously at their September meeting to change the name of our section's distinguished teaching award to: **The James P. Crawford EPADEL Teaching Award**. This award is given annually for distinguished college or university teaching of mathematics.

James P. Crawford was a Professor of Mathematics at Lafayette College, who died May 8 at the age 68. He had taught at Lafayette since 1957, where he earned numerous awards for his teaching. In 1993 one of Jim's former students established Lafayette's James P. Crawford Award, given annually to a faculty member who has demonstrated a high standard of classroom instruction. In addition to his work at Lafayette, Jim Crawford was very active in the MAA. He served as a member of the EPADEL Executive Committee (1991-4), and in 1998, he was the recipient of the Distinguished Teaching Award.

Tax deductible contributions are being solicited to fund this award in perpetuity. Contributions made out to the Mathematical Association of America and earmarked for the James Crawford EPADEL Teaching Award may be sent either to the EPADEL Treasurer Barbara Bendl or directly to the national organization. The addresses are:

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Lisa Kolbe
Development Specialist
The Mathematical Association of America
1529 - 18th Street, NW
Washington, DC 20036

Nominations

We know that there are many excellent teachers of mathematics, but to be recognized by the MAA, they must be nominated by their colleagues. Please consider nominating a colleague, a respected former teacher, or an inspiring speaker for the 2004 James P. Crawford EPADEL Teaching Award. The nomination process is two-tiered. To initiate a nomination, the nominator must submit a one-page nomination form by December 1, 2003. The Selection Committee will screen the nominations, and before January 1 will invite some of the nominators to submit full nomination packets. The full packets should be completed with the help of the nominee's department chair, and submitted by February 1, 2004. Guidelines and nomination forms may be obtained from Barbara Bendl, USIP, 600 South 43rd Street, Philadelphia, PA 19104-4495, (215) 895-1120, <b.bendl@usip.edu>.

Project NExT

Project NExT (New Experiences in Teaching) is a national program for new or recent Ph.D.s in the mathematical sciences who are interested in improving the teaching and learning of undergraduate mathematics. Project NExT-EPADEL is the Eastern Pennsylvania & Delaware Section's version of the program. Faculty members in our section who are within their first three years of teaching full time at a university, four-year or two-year college are invited to apply to become Project NExT-EPADEL Fellows. In addition, Ph.D. students in our section who are within one year of completing their degree are invited to apply. The next meeting for the NExT-EPADEL Fellows will be in Spring 2004 immediately following the spring section meeting. For more information, please see the NExT-EPADEL web page, http://www.ship.edu/~deensl/NExT-EPADEL/.
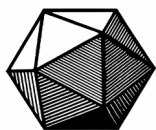
Eastern Pennsylvania and Delaware Section
of the
Mathematical Association of America

EPADEL
Eastern Pennsylvania
Delaware

Fall Meeting
Franklin & Marshall College
November 8, 2003

M O R N I N G	8:30 - 10:00	Registration Stager Hall
	9:00 - 9:15	*Welcoming Remarks* John Fry, President Stahr Auditorium, Stager Hall
	9:15 - 10:15	*p-adic Analysis, Local Zeta Functions, and Undergraduate Research* Margaret Robinson, Mt. Holyoke College Stahr Auditorium, Stager Hall
	10:15 – 10:45	Coffee & snacks break - MAA book display Stager Hall
	10:45 – 11:45	*If Archimedes Had a Computer: Continuing His Work on Floating Bodies* Chris Rorres, University of Pennsylvania Stahr Auditorium, Stager Hall
	11:45 – 12:15	Business Meeting and Elections

12:15 - 1:30	Lunch Benjamin Franklin Dining Hall

A F T E R N O O N	*1:30 - 2:30	*Confronting Diverse Student Interests: Departmental Efforts in Reforming Undergraduate Mathematics* Naomi Fischer, University of Illinois at Chicago Stahr Auditorium, Stager Hall
		Student Papers Room 105, Stager Hall
	*2:45 - 3:45	*The Hydrogen Atom, or Applications and How to Find Them* Stephanie Frank Singer Stahr Auditorium, Stager Hall
		Student Papers Room 105, Stager Hall
	3:45 - 4:30	Social time

ABSTRACTS of Invited Talks

p-adic Analysis, Local Zeta Functions, and Undergraduate Research

Margaret Robinson, Mt. Holyoke College

This talk will introduce p-adic analysis and local zeta functions and discuss why one might be interested in these topics. In particular, I will describe some problems and results from the five summers in which I have led undergraduate research groups in this area. I hope also to tell you a little bit about the mathematics summer Research Experiences for Undergraduates (REU) program at Mount Holyoke College.

Margaret Robinson is the Chair of the Mathematics Department at Mount Holyoke College. She received her Ph.D. in 1986 from Johns Hopkins University under the direction of Jun-ichi Igusa. Her research has been in the theory of local zeta functions and p-adic analysis. Professor Robinson has been co-PI on NSF grants that support the Mount Holyoke summer REU site program. She has led several summer groups of 5-6 students and her honors students have spoken regularly at the summer Mathfest, at the Hudson River Undergraduate Conference, and at the January meetings of the AMS. She has been the faculty advisor for the active Mathematics club at Mount Holyoke and co-chair of the Five College Number Theory Seminar which incorporated an outreach lecture series for undergraduates as part of the activities of the primarily research seminar. She is a mathematics councilor for the Council on Undergraduate Research, and is on the MAA Problem Book Editorial Board.

If Archimedes Had a Computer: Continuing His Work on Floating Bodies

Chris Rorres, University of Pennsylvania

According to legend, Archimedes ran naked through the streets of ancient Syracuse shouting "Eureka!" after discovering his famous Law of Buoyancy, the basic law that determines how things float. He illustrated this law in his work "On Floating Bodies" by computing various floating positions of a solid paraboloid. With the geometric tools of his day Archimedes could only consider those cases when the flat base of the paraboloid is not cut by the water. However, as I show using modern computing power, the most interesting things happen when the base *is* cut by the water. For example, an iceberg that is slowly melting can suddenly overturn, or an obelisk originally sitting on solid ground can come crashing down when the soil under it liquefies during an earthquake. Such drastic phenomena are now studied in Catastrophe Theory, a field that Archimedes could have begun if he had had the computational tools to investigate all the possible cases of his floating paraboloids.

Chris Rorres earned his Ph.D. at the Courant Institute of Mathematical Sciences of New York University under Joseph B. Keller. He has had a lifelong interest in mathematical modeling and in Archimedes. In addition to establishing the premier web site on Archimedes, he has appeared on several BBC productions describing Archimedes' life and works. He is presently a Lecturer of Epidemiology at the University of Pennsylvania's School of Veterinary Medicine, where he is doing research in the prevention and control of animal epidemics such as foot-and-mouth disease and avian influenza.

Confronting Diverse Student Interests: Departmental Efforts in Reforming Undergraduate Mathematics

Naomi Fisher, University of Illinois at Chicago

"Excellence in Undergraduate Mathematics: Confronting Diverse Student Interests" is a three-year, NSF funded project to create a network of mathematics and mathematical sciences departments that are working to excel in instruction for all their students. The center of the project is a series of six national workshops to assist departments in assessing their undergraduate programs, learn about exemplary approaches, and share good ideas. The workshops include a working session in which teams from participating departments draft plans for reforming or expanding their undergraduate programs to discuss with their department colleagues.

105 departments have participated in one or more of the five workshops to date. These departments represent the spectrum of institutions teaching undergraduate programs: 31 departments are in comprehensive universities, 39 departments are in research universities, 21 departments are in 4-year colleges, and 14 are in 2-year colleges.

This talk will present salient topics that have been discussed at the workshops, critical issues that departments are facing, and summarize key points for moving ahead successfully in reforming undergraduate programs.

Naomi Fisher is a Professor at the University of Illinois at Chicago and Director of the Mathematicians and Education Reform Network. She has also served as Director of the High School Teaching Program for the Regional Geometry Institute (RGI) for the Universities of Chicago at Illinois, Rice, Texas, Utah, and Washington. Prior to coming to the University of Illinois at Chicago, Dr. Fisher served four years as Associate Director of the University of Chicago School Mathematics Project. She received the AWM's Louise Hay Award in 1993 for her work in mathematics and education.
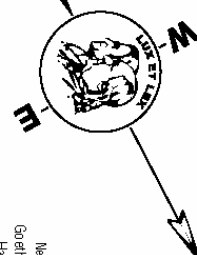

The Hydrogen Atom, or Applications and How to Find Them

Stephanie Frank Singer

As any math lover knows, mathematics permeates the world. Yet as any teacher of college math knows, it is not easy to present applications of mathematics successfully in the classroom. In this talk I will give advice on finding applications and present my current favorite example -- the success of representation theory in making predictions about the hydrogen atom and other quantum mechanical phenomena.

Stephanie Frank Singer received her Ph.D. in 1991, under the direction of Nick Ercolani. Her research has centered on the Toda lattice and other integrable systems in mathematical physics. While at Haverford College from 1991-2002, Dr. Singer developed innovative courses that combined mathematics and physics, as well as courses for "math-anxious" students. Her first book, *Symmetry in Mechanics: A Gentle Modern Introduction*, was published by Birkhauser in 2001, and her new book, *The Hydrogen Atom: An Introduction to Group and Representation Theory,* will soon be published by Springer-Verlag.

CAMPUS OF
FRANKLIN & MARSHALL
COLLEGE
LANCASTER, PENNSYLVANIA

LUX ET LEX

WALKWAYS

ROADS

French Street

Healthy Living House
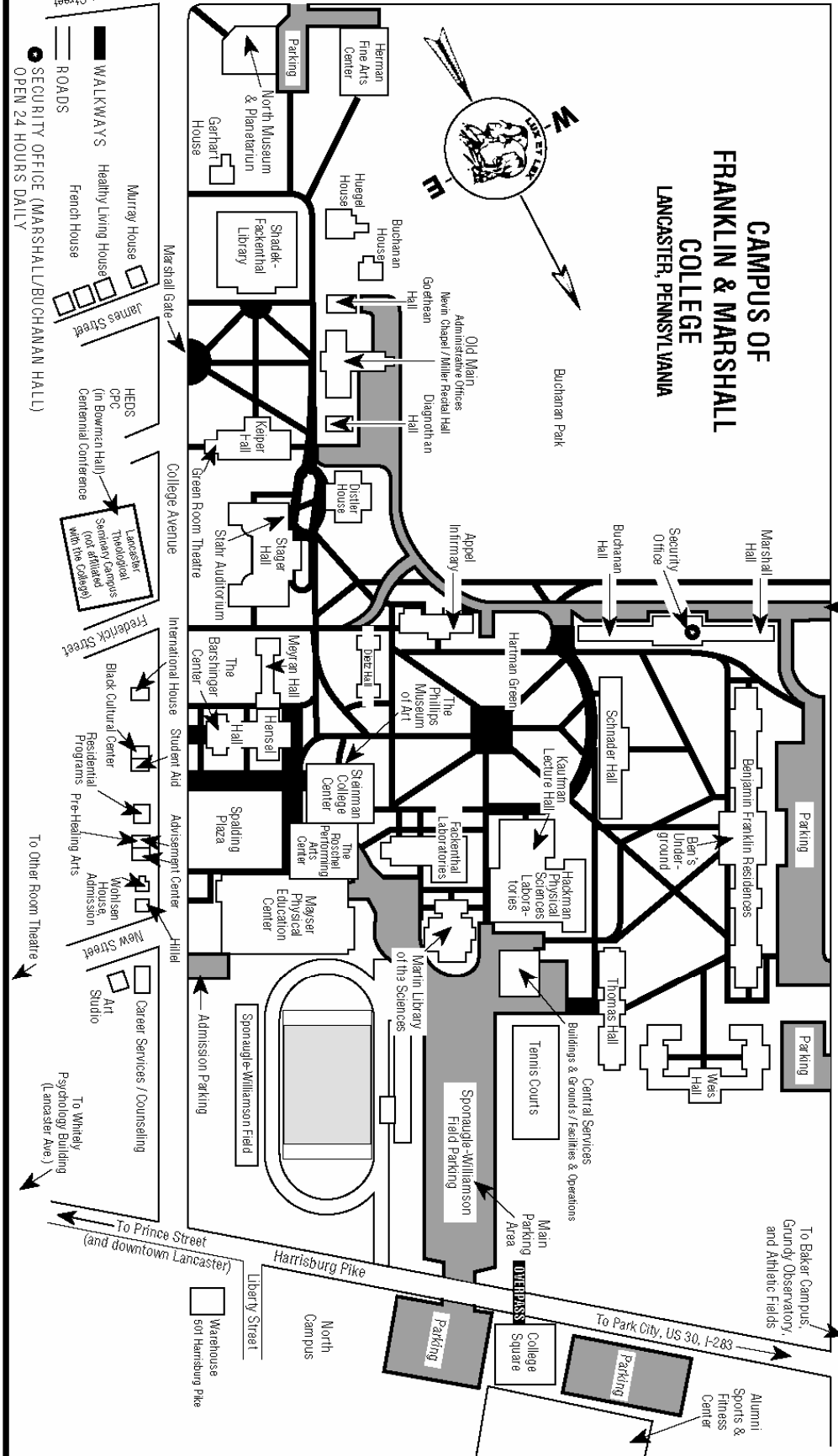
SECURITY OFFICE (MARSHALL/BUCHANAN HALL)
OPEN 24 HOURS DAILY

Lemon Street

Buchanan Avenue

Herman Fine Arts Center

North Museum & Planetarium

Gerhart House

Huegel House

Shadek-Fackenthal Library

Buchanan House

Murray House

French House

James Street

Marshall Gate

Goethean Hall

Nevin Chapel / Miller Recital Hall

Old Main
Administrative Offices

Diagnothian Hall

Buchanan Park

Main Entrance to Administrative Offices

James Street

Keiper Hall

Green Room Theatre

Distler House

Stahr Auditorium

Stager Hall

College Avenue

HEDS
CPC
(in Bowman Hall)
Centennial Conference

Lancaster Theological Seminary Campus (not affiliated with the College)

Frederick Street

International House

The Barshinger Center

Meyran Hall

Dietz Hall

Hensel Hall

Appel Infirmary

The Phillips Museum of Art

Hartman Green

Marshall Hall

Security Office

Buchanan Hall

Schnader Hall

Frederick Street

Main Entrance to Administrative Offices

644–646 Race Ave.

Business Office

Black Cultural Center

Student Aid

Residential Programs, Pre-Healing Arts

Steinman College Center

Spalding Plaza

The Roschel Performing Arts Center

Fackenthal Laboratories

Kaufman Lecture Hall

Benjamin Franklin Residences

Ben's Under-ground

Hackman Physical Sciences Labora-tories

Parking

Race Avenue

Advisement Center

Wohlsen House, Admission

New Street

Hillel

Mayser Physical Education Center

Martin Library of the Sciences

Thomas Hall

Central Services
Buildings & Grounds / Facilities & Operations

Weis Hall

Parking

Clay Street

To Other Room Theatre

Career Services / Counseling

Admission Parking

Sponaugle-Williamson Field

Tennis Courts

Sponaugle-Williamson Field Parking

Main Parking Area

To Baker Campus, Grundy Observatory, and Athletic Fields

Ross Street

Art Studio

To Whitely Psychology Building (Lancaster Ave.)

To Prince Street (and downtown Lancaster)

Harrisburg Pike

OVERPASS

College Square

Liberty Street

North Campus

Warehouse
501 Harrisburg Pike

Parking

To Park City, US 30, I-283

Parking

Alumni Sports & Fitness Center

Student Parking

Directions to Franklin & Marshall

From Delaware:
Follow **Rt. 41** north from Hockessin, DE to **Rt. 30** junction in Gap, PA. Turn left at the light at the 41/30 junction onto **Rt. 30 west** toward Lancaster. Follow Rt. 30 west for approximately 20 minutes. You will pass the shopping outlets and continue to follow 30 west until it becomes a 2 lane highway. Continue to follow signs for **Rt. 30 west (York).** Pass Oregon, Lititz and Fruitville Pikes. Just beyond Fruitville Pike, exit to <u>**continue**</u> on 30 west (York). Take first exit for **Harrisburg Pike** (The Park City Mall will be on right). At the top of the exit ramp, turn left onto **Harrisburg Pike.** Proceed 1.5 miles through several traffic lights until you reach the overhead pedestrian bridge. See below.

From Harrisburg and Central Pennsylvania:
From north of Harrisburg, take **Rt. 15 south** to **Rt. 322 east**. Cross the Susquehanna River and follow to **Rts. 81 north/322 east**. From Rts. 81 north/322 east, take **Rt. 83 south** to **Rt. 283 south**. From Rt. 283 south, exit onto **Rt. 283 east** (to Lancaster). Take Rt. 283 east to **Rt. 30** west towards York. Take the first exit for **Harrisburg Pike** (The Park City Mall will be on right). At the top of the exit ramp, turn left onto Harrisburg Pike. Proceed 1.5 miles through several traffic lights until you reach the overhead pedestrian bridge. See below.

From Philadelphia:
Take the **Pennsylvania Turnpike west** to **exit 286/old exit 21 (Lancaster/Reading/Rt. 222 south).** Follow Rt. 222 south approximately 14 miles to the Lancaster area. Stay to the right and follow signs for **Rt. 30 west (York).** Pass Oregon, Lititz and Fruitville Pikes. Just beyond Fruitville Pike, exit to <u>**continue**</u> on 30 west (York). Take first exit for **Harrisburg Pike** (The Park City Mall will be on right). At the top of the exit ramp, turn left onto **Harrisburg Pike.** Proceed 1.5 miles through several traffic lights until you reach the overhead pedestrian bridge. See below.

From the pedestrian bridge:
At the traffic light immediately after the pedestrian bridge, turn right for parking. Overflow parking is across the street (that is, turn left at the light after the bridge).

----------------Detach bottom portion and return with payment-----------------

Registration Form

Name_____   First Time Attendee?

School_____   ☐ Yes   ☐ No

Status: ☐ High School Instructor   ☐ Undergraduate Student   ☐ Graduate Student

☐ 2-year College Faculty   ☐ 4-year College Faculty   ☐ Emeritus

Registration Fee:
    $15.00   ($17.00 on site)
    $ 2.00   (students, emeriti, & unemployed)
    $ 0.00   (full time faculty who are first time
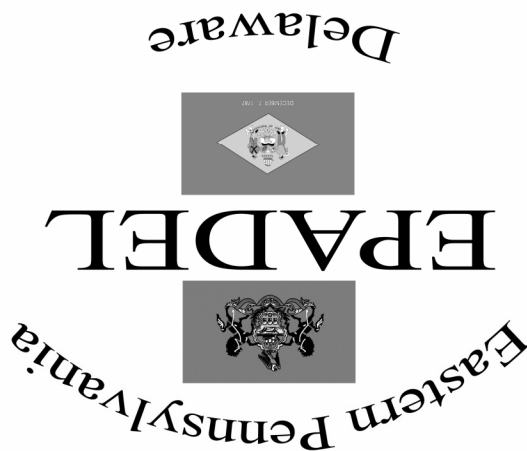   attendees) $_____
Lunch:
    $ 8.00 $_____

$_____ Total

> Send pre-registration to:
>
> Annalisa Crannell
> Department of Mathematics
> Franklin & Marshall College
> Lancaster, PA 17604-3003

Pre-registration Deadline: Friday October 27, 2003

Michael Fraboni
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Fall Meeting – November 8, 2003

Franklin & Marshall College

Lancaster, PA

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