Agenda

1. Welcome
2. Introductions of New People
3. Conferences 2009-10
4. State of Departmental Programs
5. State of the Department
Motto

‘If I were again beginning my studies, I would follow the advice of Plato and start with mathematics.’

Galileo Galilei, 1564-1642
Introductions

New Faculty

Alex Roitershtein

Tathagata Basak
Introductions

New Lecturer

J. D. (Juri) Bhattacharyya
Introductions
New Postdocs

Ahmet Alturk    Minnie Catral    Cory Howk
Introductions
Visiting Scholar

Humberto Verdejo
University of Chile
Promotion and Tenure

Domenico D’Alessandro – full professor

Ling Long – associate professor with tenure

Ryan Martin – associate professor with tenure

Eric Weber – associate professor with tenure
New Role in the Department

Elgin Johnston, Director of the proposed Center for Excellence in Mathematics Education (CEME)
Evans' FPDA involved four components. First, Evans visited Germany giving invited seminars at U. Ulm, Koeln, Ilmenau, and Hannover, and a lead talk at the Harz Seminar on Non-Linear Phenomena.

However, the primary goal was collaboration with a leading experimentalist, Ronald Imbihl (U. Hannover) who studies reaction-diffusion phenomena on surfaces. We plan to pursue analyses of "reactive phase separation" and surface diffusion for extremely high coverages.

Second, he spent 2 months at the IMA (U. Minnesota) during their annual program on 'Mathematics and Chemistry' giving seminars and with Arnd Scheel organized a symposium on reaction-diffusion phenomena.

Third, he spent two weeks at the Chinese Academy of Sciences in Beijing hosted by Enge Wang (CAS Secretary). He also collaborated with a former postdoc, Maozhi Li, now a professor at Renmin University, on modeling of island formation on surfaces.

Fourth, he visited IMS (Nat. U Singapore) giving two invited seminars during their workshop on Materials Modeling. In addition, during the FPDA, he coordinated preparation and submission of an 8-person SISGR proposal and a 2-PI CTC proposal to USDOE. The latter was funded.
Returning from Sabbatical: Scott Hansen

Focused on learning more in the area of Carleman estimates for partial differential equations, application to inverse problems and homogenization theory in application to scaling of elastic systems, Hansen spent the better part of Fall semester at Colorado State University.

He was collaborating with Oleg Imanuvilov, considered to be one of leading experts in world in both optimal control theory and inverse problems theory, on application of Carleman estimates to control theory of layered plate systems.

Hansen also visited Virginia Tech to work with David Russell, a leading expert in control theory on faculty there, and continue collaboration with Richard Fabiano of University of North Carolina at Greensboro, who also was visiting Virginia Tech (Fabiano spent a month at ISU in 2000).
Returning from Sabbatical: Leslie Hogben

Leslie Hogben’s primary focus was to lead groups of researchers investigating the problem of computation of minimum rank of matrices described by a given graph or digraph, and to extend her research into additional areas.

Two of the eight research papers she submitted to refereed journals during her year-long FPDA have been published, four have been recommended for acceptance and two remain under review.

She made numerous trips to work with collaborators or participate in research meetings, including giving plenary lectures at the International Conference on Algebra and Related Topics (ICART 2008) in Bangkok and at the 15th International Linear Algebra Society (ILAS) Conference in Cancun.

Hogben assumed the ISU leadership of the Alliance grant (NSF grant to produce more minority PhDs) and the role of Math Dept Diversity Coordinator, as well as continuing her work for the American Institute of Mathematics (AIM) as Associate Director for Program Diversity.

She organized the Alliance Iowa Field of Dreams conference on the ISU campus and co-led a workshop on undergraduate research for college faculty at AIM in Palo Alto, in addition to making several recruiting trips.

Hogben also submitted four new grant proposals, two of which have been funded (the others are under review).
Returning from Sabbatical: Hailiang Liu

During spring semester, Hailiang Liu worked mainly on the NSF focus research group project: Kinetic description of multi-scale phenomena: modeling, theory and computation, together with other leading researchers who merge their expertise in the construction, analysis and implementation of kinetic descriptions of some long standing problems with crossing scales from quantum and micro to macro.

While in residence at UCLA, he continued his research collaborations with Stanley Osher (Mathematics) on level set methods for wave propagation problems. Liu also developed several new research collaborations, including one with James Ralston (UCLA) around a rigorous recovery theory of high frequency wave fields from phase space based computations for both Schrödinger equations and acoustic wave equations.

Liu also participated in the NSF funded Institute of Pure and Applied Mathematics program, “Quantum and Kinetic Transport Equations: Analysis, Computations and New Applications.”
New Graduate Students

Sa’ud Al-Sa’Di
Jordan
Jordan University of Science and Technology

Andrii Berdnikov
Ukraine
Odessa National University

Craig Erickson
USA
Minnesota State, Mankato

Does anybody know what time it is?
New Graduate Students

- Brian Estervig
  - USA
  - U of Wisconsin, River Falls

- Qi (Dan) Gan
  - USA
  - Iowa State University

- Paul Hertz
  - USA
  - University of Wyoming

It’s all about the numbers…
New Graduate Students

Ryan Johnson
USA
Hope College

Nicole Kingsley
USA
SUNY-Geneseo

Jeremy Knutson
USA
South Dakota State University

Lucas Kramer
USA
Minnesota State, Mankato
New Graduate Students

Yongki Lee
South Korea
Pohang University

Steven Osborne
USA
Greenville College

Robert Perry
USA
UC-Riverside

Jose Ponce, Jr.
USA
UT-Brownsville
New Graduate Students

Wenjun Qin
PR China
Shaanxi University

Jolie Roat
USA
Nazareth College of Rochester

Arianne Ross
USA
Spelman College

Jeongmin Shon
South Korea
Pohang University
New Graduate Students

Sevim Simsek
Turkey
Bogazici
University

Marshall Stuart
USA
University of
Northern Iowa

Sukhinin
Volodymyr
Ukraine
Donetsk National
University

Richard Troll
USA
Iowa State
University
New Graduate Students

Min Wang  
PR China  
USTC

Nathan Warnberg  
USA  
Iowa State University

Shu Yang  
PR China  
Beijing Normal University

Chaoliang Zhang  
China  
Chinese Academy of Science
Conferences 2009-2010

**Should we trust the numbers?**
*A workshop on philosophy, mathematics and statistics in the Court of Law*

Friday, September 11, 2009
Campanile Room, Memorial Union

2:00 p.m. Overview talks on epistemology, causality and theory of evidence

3:45 p.m. *Proving Causation: The Holism of Warrant and the Atomism of Daubert* - Susan Haack


5:30 p.m. Dinner on your own

7:00 p.m. Dessert reception

7:30 p.m. Numbers in the Court of Law Roundtable with J. Kadane and S. Haack

Organizers: Departments of Mathematics, Statistics, Philosophy, and Center for Excellence in the Arts and Humanities at ISU
Conferences 2009-2010

Ames Symposium in Probability and Statistics in honor of Krishna B. Athreya

Friday and Saturday, September 18-19, 2009

Invited speakers:

• Tom Kurtz (Univ. of Wisconsin, Madison)

• Soumen Lahiri (Texas A& M Univ.)

• Steven Lalley (Univ. of Chicago)

• Mukul Majumdar (Cornell Univ.)

• Timo Seppäläinen (Univ. of Wisconsin, Madison)

• Ofer Zeitouni (Univ. of Minnesota, Weizmann Inst. of Science, Israel)

Organizers:
Arka P. Ghosh
Alexander Roitershtein
Sunder Sethuraman
Ananda Weerasinghe
Conferences 2009-2010

Midwest Numerical Analysis Day

April 24-25, 2010

Organizers:

Fritz Keinert
Hailiang Liu
Steve Hou
Jue Yan
Announcements

**Departmental Picnic** – Sunday, Sept. 20, 4 pm, Emma McCarthy Lee Park, Butternut Shelter

**The Sprague Room** – programming coordinator: Jim Wilson

**IT issues**: computer security and administrative rights

**Reimbursements**: itemized receipts
State of Departmental Programs: Graduate

Paul Sacks
State of Departmental Programs: Graduate

Students currently enrolled

About 70 students currently enrolled
  2 in co-major or degree programs
  18 female
  38 international (12 countries)
  60+ currently funded by us
State of Departmental Programs: Graduate

New students

21 new students (including S08 entry)
- 3 female
- 13 international (10 countries)
- 18 currently funded
State of Departmental Programs: Graduate

Core course enrollments

Numerical Analysis 17
Algebra 17
Linear Algebra 18
Real Analysis 22
Applied Mathematics 18
Ordinary Differential Equations 9

(Also 554 (19), 621 (11) 690V (12))
State of Departmental Programs: Graduate

Degrees awarded last year
(Fall 07 - Summer 08)

4 MS
10 PhD
State of Departmental Programs: MSM

Heather Bolles
State of Departmental Programs: MSM

**Summer 2009 Enrollment**

- 24 active MSM students (teachers)
- 11 new admissions for SS09
- 25 students enrolled in Math 549 (Intermediate Geometry)
- 30 students enrolled in Math 547 (Discrete Mathematics and Applications)

- While most teachers were in Iowa, we also had teachers taking the courses in Arizona, Illinois, South Dakota, and Wyoming.
State of Departmental Programs: MSM

Degrees awarded Fall 2008 – Summer 2009

• 7 graduates

• 6 currently teach at high schools; 1 teaches at a community college

• Anticipate 2 Fall 2009 graduates
State of Departmental Programs: Undergraduate

Jim Wilson
State of Departmental Programs: Overall

Elgin Johnston
State of Departmental Programs: Overall

Fall 2009 Teaching

Approximately 7,800 students

Approximately 25,500 SCH
(not counting math 10, for an additional 561)
State of Departmental Programs: Overall

Some large Fall enrollments

- Math 165: 1,143
- Math 150: 1,066
- Math 414: 0,032
- Math 435: 0,030
State of Departmental Programs: Overall

Major numbers are up this year:

Jim and I have both seen several students adding math as a major this semester.

Will have to make sure we can accommodate the resulting increased demand for upper level courses.
State of Departmental Programs: Overall

Summer

Approximately 790 students
Approximately 2,650 SCH

Implemented some new ideas for last SS to boost enrollments. Publicity, creative scheduling, etc. We should be able to do better in Summer 2010.

In addition, new placement exam structure may lead to increased Summer enrollments.
State of Departmental Programs: Overall

New Placement Exam:

We will be using the ALEKS system as our placement tool. It is being used as many places across the country, and users seem very satisfied with it.

One attractive feature is the remediation aspect...the ALEKS system creates an individual study program for each student based on their areas of weakness and strength as revealed by the initial assessment.

Students who do not test into their desired course will have to work to the necessary level using the ALEKS remediation or take a prerequisite.
State of Departmental Programs: Overall

Goals: Pilot implementation by Engineering for entering F 2010 students

• Eventually every student entering ISU and who plans to take a Math course must take the placement exam. This includes transfer students.

• Available to high school students for anytime assessment of their readiness for ISU Math

• Students who do not test into their desired course will have to work to the necessary level using the ALEKS remediation or take a prerequisite.

• State wide implementation
State of Departmental Programs: Overall

How are we doing?

We will be downloading 5 years worth of data on student background and performance from the Registrar and, perhaps, some other sources. Working with Statistics, we will use the data to build a picture of how students perform in ISU Mathematics and Statistics courses.

What are indicators of success? Of failure? Are our service courses preparing students for down stream courses? What about WWW vs classroom based experiences? LL vs classes of size 38? TA vs tenured track faculty? How do CC transfers fare? Is there a difference in student preparation from one CC to the next? Similar questions about high schools. How is our placement process working?

One the system is in place we will be able to update it every year to monitor our progress in addressing problems with courses and student performance.
State of the Department

The Budget Year 2009-2010

• 2 retirements, 1 reduction ½ time vs. 2 new TE faculty hires

• Budgeted lecturer positions from 5.42 to 6.67 FTEs

• Budget cut of 6.25% - average in LAS

• Emergency teaching funds of $388,000

• Hiring of 1.33 lecturer and 3.25 post doc FTEs
State of the Department

The Budget Year 2009-2010, continued

• Total of 69 TA positions in 2009/10 vs. 65 in 2008/09

• $30,000 for hourly help (grading, help room)

• Summer school profit and supplies and services

• Remodeling of Carver 400, 401, 408
State of the Department

Consequences for 2009-2010

• All faculty teach regular course load

• TA, help room and grading support at same level as last year

• Faculty professional development funds at least $10,000

• Expectation of some teaching reductions in Spring 2010
State of the Department

Strategic Planning

• Increasing demand for SCH covered by lecturers in 2009/10

• Loss of 2 TE faculty lines for 2010/11

• Hiring of 1 new TE and 2 new NTE faculty

• If no additional SCHs: Mild stabilization of teaching budget

• Tendency: Hire NTE : TE faculty at ratio 2:1 until NTE reaches 25-33%

• Strategic Planning Committee
State of the Department

The Budget Year 2010/11

• Expected mid-year reversion in 2009/10 to be covered by LAS

• Expected budget cut for 2010/11: same as for this year?

• No salary raises or salary cuts?

• Increased teaching loads for Fall 2010? Currently discussed:
  standard teaching load for lecturers 4+4
  each faculty member teaches at 100 students p/a

• Acceleration of NTE emergency hires?