Fall 2012 Departmental Meeting

Friday, September 7
4:10 p.m.
305 Carver Hall
Agenda

1. Welcome
2. Introductions of New People
3. Announcements
4. State of Departmental Programs
5. State of the Department
Introductions
New Faculty

Songting Luo   James Rossmanith   Tim McNicholl
Introductions
New Lecturers

Paul Barloon   Miriam Castillo-Gil   James Cliber   Jean Krusi
Introductions
New Lecturers

Kristopher Lee   Elijah Stines   Paul Tokorcheck
Introductions
New Postdocs

Oktay Olmez   Raffaele Romano   Andrew Ylvisaker
Introductions
New Position

Fritz Keinert
Departmental IT Coordinator
Paul Sacks spent Fall 2011 attending conferences and participating in research programs at:

- Chemnitz University of Technology in Germany
- Dokuz Eylul University in Turkey
- International Conference on Scientific Computing in Italy
- University of Cambridge and Durham University in England.
On FPDA this year

Jonathan D. H. Smith will focus on advanced algebra, education and research in Ames, Warsaw and Denver.

His work will address dual goals: a review of the way advanced algebra is taught at undergrad and graduate levels, and the advancement of two emerging fields of algebra addressing key issues that arise when science attempts to cope with an increasingly involved and connected world: approximate symmetry and complex systems.
On FPDA this year

Fritz Keinert will spend spring semester at the Universita de Bologna in Italy focusing on new and continuing research projects in compressed sensing.

In particular, Keinert will work to develop new algorithms for CS of video sequences, where correlation between successive frames can be used to eliminate data errors and further reduce the number of measurements.
New Graduate Students

Jeremy Bohrer
USA
Fitchburg State College

Chassidy Bozeman
USA
Clark Atlanta University

George DeBeck
USA
Oregon State

Anna Ellsworth
USA
Mount Holyoke
New Graduate Students

Maria Fischer  USA  St. Thomas
Jeremiah Goertz  USA  Kansas State
Brandon Groth  USA  UW-LaCrosse
Kristin Heysse  USA  Concordia
New Graduate Students

Calvin Hotchkiss  USA  Drexel
Anna Lischke  USA  Washburn
Kacy Messerschmidt  USA  ISU
Kevin Moss  USA  ISU
New Graduate Students

Michael Munywoki
Kenya
Kenyatta University

Crystal Peoples
USA
Longwood

Kahni Pr’out
USA
Savannah State

Ke Ren
China
ISU
New Graduate Students

Aaron Rodriguez
USA
St. Thomas

Leoncio Rodriguez
Colombia
Univ PR-Mayaguez

Shanise Walker
USA
University of Georgia

Stefanie Wang
USA
Smith College
New Graduate Students

Dong Yan McDanel
China
ISU

Sen Zhou
China
Tongji University
Announcements

Departmental Picnic
Sunday, September 16 at 4:00 p.m., Emma McCarthy Lee Park, Butternut Shelter

MIGHTY LIII
September 21-22

Janson Professorship Medallion Ceremony
Friday, September 21 at 5:00 p.m. in Campanile Room

Undergraduate “Tea”
Thursdays 3:00 p.m. to 4:00 p.m. in 400 Carver

Faculty Conversations
Each Tuesday at Noon and Friday at 4:10 p.m. in 401 Carver
State of Departmental Programs:

Graduate Program

Cliff Bergman
State of Departmental Programs:
Graduate Program Enrollment

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>First Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total enrollment</td>
<td>88</td>
<td>22</td>
</tr>
<tr>
<td>Ph. D.</td>
<td>76</td>
<td>16</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>11</td>
</tr>
<tr>
<td>Underrepresented</td>
<td>8</td>
<td>4</td>
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<tr>
<td>International</td>
<td>34</td>
<td>6</td>
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<tr>
<td>Funded</td>
<td>85</td>
<td>22</td>
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State of Departmental Programs:

Graduate Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Total</th>
<th>First year</th>
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<tbody>
<tr>
<td>Mathematics</td>
<td>58</td>
<td>13</td>
</tr>
<tr>
<td>Applied Math.</td>
<td>28</td>
<td>8</td>
</tr>
<tr>
<td>BCB</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>InfAs</td>
<td>1</td>
<td>1</td>
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# State of Departmental Programs:

## Graduate Core Course Enrollment

<table>
<thead>
<tr>
<th>Course</th>
<th>Enrollment</th>
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</thead>
<tbody>
<tr>
<td>Algebra (504)</td>
<td>17</td>
</tr>
<tr>
<td>Linear Algebra (510)</td>
<td>25</td>
</tr>
<tr>
<td>Analysis (515)</td>
<td>17</td>
</tr>
<tr>
<td>Appl. Math. (519)</td>
<td>16</td>
</tr>
<tr>
<td>ODEs (557)</td>
<td>5</td>
</tr>
<tr>
<td>Num. Anal. (561)</td>
<td>16</td>
</tr>
</tbody>
</table>

- 501 (16)  407/507 (16)  554 (16)  566x (9)  605 (6)  615 (11)  621 (10)
- 655 (5)   642 (16)      666 (5)
State of Departmental Programs: Graduate

Degrees awarded F11 – SS12

17 PhD
4 MS
State of Departmental Programs:
Master of School Mathematics Program

Heather Bolles
State of Departmental Programs:
Master of School Mathematics Program
Enrollment

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will likely graduate Fall 2012</td>
<td>4</td>
</tr>
<tr>
<td>Finished 3rd Year or All But CC</td>
<td>6</td>
</tr>
<tr>
<td>Finished 2nd year</td>
<td>3</td>
</tr>
<tr>
<td>Finished 1st year</td>
<td>6</td>
</tr>
<tr>
<td>Non-MSM</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
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</table>

State of Departmental Programs:
Master of School Mathematics Program
Enrollment

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<tr>
<td>Finished 1st year</td>
<td>6</td>
</tr>
<tr>
<td>Non-MSM</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>
# State of Departmental Programs:

## Master of School Mathematics Program

### Summer 2012 Enrollment

<table>
<thead>
<tr>
<th>Course</th>
<th>Total</th>
<th>On-Campus</th>
<th>Off-Campus*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar In Math Ed (540B)</td>
<td>13</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Discrete Mathematics &amp; Applications (547)</td>
<td>18</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Intermediate Geometry (549)</td>
<td>17</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

*Off-Campus: this includes students from out-of-state (Minnesota, Kansas, and Arizona)

Graduated Fall 2011 – Summer 2012 (3)
State of Departmental Programs:
Master of School Mathematics Program
Summer 2013 Courses

• Math 545 (4 credit) Intermediate Calculus

• Math 546 (3 credit) Algorithms in Analysis and their Computer Implementation

• Math 540C (1 credit) Seminar in Mathematics Education

If you have interest in teaching a course in the MSM program, in working with a teacher on his/her creative component, or in contributing a topic you feel would be of interest to a teacher working on a creative component, please see me.
State of Departmental Programs:
Undergraduate Mathematics Education

James Wilson
State of Departmental Programs:
Undergraduate Mathematics Majors

~270 Mathematics Majors

~100% growth in 4 years

Much interest in

• Economics/Finance Applications 45%

• MathPlus 45%

  New options:
  Mathematical Biology
  Mechanical Engineering
  Materials Engineering

• Education 35%
State of Departmental Programs:
Undergraduate Course Changes

- 101 Orientation in Mathematics
- Calculus for Mathematics Majors
- 304 Introduction to Combinatorics
- 407 Applied Linear Algebra
State of Departmental Programs:
Undergraduate Life

- Invited Speakers: Mathematics and Careers
- Weekly Undergraduate Bulletin
- Sprague Room Social Activities
- Steve Butler
- GRE Preparation - MOCA
- Contests and Preparation
- Math Club / Pi Mu Epsilon
- Undergraduate Research
State of Departmental Programs:
Undergraduate Forecast

- More majors
- Advertising
- Financial Mathematics course
- Advising and mentoring changes
State of Departmental Programs:
Instructional Mission

Jennifer Davidson
Students taking Math classes

<table>
<thead>
<tr>
<th></th>
<th>Fall 2010</th>
<th>Fall 2011</th>
<th>Fall 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Students</td>
<td>7664</td>
<td>7953</td>
<td>8502</td>
</tr>
<tr>
<td>% Change</td>
<td>3.8%</td>
<td>6.9%</td>
<td></td>
</tr>
<tr>
<td>Total SCH</td>
<td>25,379</td>
<td>27,658</td>
<td>29,735</td>
</tr>
<tr>
<td>% Change</td>
<td>9%</td>
<td>7.5%</td>
<td></td>
</tr>
<tr>
<td>Date of Record</td>
<td>8/21/10</td>
<td>8/29/11</td>
<td>8/31/12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class</th>
<th>141/2</th>
<th>150</th>
<th>All calculus</th>
<th>266/7</th>
<th>3XX</th>
<th>4XX</th>
<th>5XX+ 6XX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2010</td>
<td>873</td>
<td>927</td>
<td>2708</td>
<td>548</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2011</td>
<td>815</td>
<td>1038</td>
<td>2904</td>
<td>620</td>
<td>313</td>
<td>90</td>
<td>245</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>814</td>
<td>908</td>
<td>3274</td>
<td>695</td>
<td>403</td>
<td>79</td>
<td>233</td>
</tr>
<tr>
<td>% increase 10-11</td>
<td>-6.6 %</td>
<td>+ 12.0 %</td>
<td>+ 7.2 %</td>
<td>+13.1 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% increase 11-12</td>
<td>0 %</td>
<td>-12.5 %</td>
<td>+ 12.7 %</td>
<td>+ 12.1 %</td>
<td>+28.6 %</td>
<td>- 12.2 %</td>
<td>- 4.9 %</td>
</tr>
</tbody>
</table>

IOWA STATE UNIVERSITY
Department of Mathematics
State of Departmental Programs:
Center for Excellence in Undergraduate Mathematics Education

Fall 2012 is the first semester in which every incoming student took the ALEKS placement assessment.

Although we place all incoming students in 000, 100, and 200 level courses, we are at this time very interested in how this might change the student population in Math 165 and 166.

Elgin Johnston
State of Departmental Programs:
Center for Excellence in Undergraduate Mathematics Education

MyLabsPlus in Calculus

...upcoming discussions about future use and how much autonomy faculty want in its use.
State of Departmental Programs:
Center for Excellence in Undergraduate Mathematics Education

At least 8 instructors are using “Clickers” this semester.

We are in the process of putting together a group to discuss ideas and problems around clicker usage.
State of Departmental Programs:
Center for Excellence in Undergraduate Mathematics Education

Building an “archive” of materials for use in Calculus classes: projects, clicker questions, reading quizzes for Blackboard.

Contributions welcome!!
State of Departmental Programs:
Center for Excellence in Undergraduate Mathematics Education

Keep undergraduates aware of problem solving activities:

- Putnam seminars starting soon
- Problem of the Week.
State of Departmental Programs:
Center for Excellence in Undergraduate Mathematics Education

Very successful conference on pre-calculus in June, 2012 “Three Communities, One Goal.”

Follow-up with conference web site for materials and a list serve for further communications.
State of Departmental Programs:

Center for Excellence in Undergraduate Mathematics Education

More speakers on Teaching Mathematics and Mathematics Education planned for the coming year.
Update on State of the Department: 

Personnel

• At least 3 retirements/resignations before or during AY 2012/13 (Maddux, Axenovich?, Athreya)

• ½ new position for Fall 2013: Probability, jointly with Statistics, assistant or associate professor

• Lecturers: great basis, additional lecturers can help with new and more-student centered delivery forms

• Increase in majors and STEM Students in general: requires additional 3xx/4xx-level instructors, i.e. new NTE faculty
Update on State of the Department:

Research

• Increased number of research publications over last 10 years from 1.6 to 2.0 to 2.5 p/a

• External funding during the last 3-year period was at over $2.5 million p/a, an over 60% increase from the previous 3-year period (double-counting)

• 17 (i.e. 44%) TE faculty have external awards at this moment
Update on State of the Department: Research

- Latest NSF funding data (for 2009) show the mathematical sciences (mathematics and statistics) at ISU at rank 14 of all academic institutions in the US. ISU Mathematics was awarded about one third of the joint mathematics/statistics total during that year.

- Dean’s signature themes: most new research positions will be aligned with these themes, Department needs to explore this opportunity.
Update on State of the Department:

Teaching

• Much praise from everyone, including Dean and handwritten notice from Provost

• Less than 1 complaint per 1,000 students per semester

• TE faculty: 12 credits/a → 9 faculty with teaching release this year (+ faculty development program)
Update on State of the Department:

Teaching

• NTE faculty: 100% position is still at 4+4

• Medium size lecture (266/267): team teach

• Clickers

• Recruiting majors: with sister departments
Update on State of the Department:

Budget

- $200,000 additional permanent funds for graduate student assistantships ~ 57 TAs
- $20,000 additional permanent funds for hourly help, e.g. graders, help rooms
- These and new lecturers result in more stable teaching budget
Update on State of the Department:

Budget

• Supplies and services still depends on summer school

• Together with carry-over we expect same budget flexibility as last year

• Projects:
  • Wireless 3rd and 4th floor of Carver
  • Remodeling of 250 Carver
  • Other suggestions?