

Department of
Mathematical Sciences

University of Colorado at Denver
& Health Science Center

Annual Report

Academic Year
2005-2006

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Introduction

The Department of Mathematical Sciences offers a B.S. at the undergraduate level and an M.S. degree as well as a Ph.D. at the graduate level. The areas of research concentration of the faculty cover a broad spectrum of the applied mathematical sciences. Areas of scholarly activity include: Optimization, Statistics, Probability, Discrete Mathematics, Numerical Analysis, Operations Research, Computational Biology and Computational Mathematics. In 1999, as evidence of the department's reputation, we were awarded a prestigious five year, one and a half million dollar grant from the Colorado Commission for Higher Education. This was the Center of Excellence Grant, for excellence in research and graduate education; unfortunately budget cuts forced a complete elimination of the funding in the final two years of the grant. It is the department mission to provide a quality education to all students at all levels, from service courses through the highest level of graduate instruction.

During this year, the department awarded 20 undergraduate degrees, 11 Master's and 3 Ph. D.'s. The department has a goal of sustaining a doctoral program producing between 5 and 7 Ph. D.s per year. In an attempt to enlarge and enhance the number and quality of the student population, faculty members have made a concerted effort to include support for graduate and undergraduate students in proposals being submitted for external funds. In particular, the department submitted a proposal to the U.S. Department of Education for the Graduate Assistance in Areas of National Need (GAANN) program. The proposal, although receiving high scores, was not funded. However, the program director encouraged the department to address the reviewer's comments and resubmit this fall. With the reviewer's comments in mind, a new proposal will be prepared for submission in November 2006. However, matching funds from the University are needed as well as a commitment to continue the expansion being pursued.

The Computational Mathematics Group in collaboration with NCAR and UC-Boulder secured funding to purchase one of the fastest parallel processing machines commercially available. This enables faculty and students to access a state-of-the-art computing facility. The Beowulf cluster, the department's parallel processing machine, with 128 processors, continues to offer the department excellent service for basic multi-processor basic computational needs.

In addition, the department has started to explore collaborative work with local corporations as a way to secure funding for students in the mathematical sciences as well as strengthen the research productivity of the faculty.

Finally, special thanks go to Marcia Kelly who meticulously compiled most of the information. The Department web site www.math-cudenver.edu contains additional information about the Mathematical Sciences and department activities.

Year in Review

Undergraduate Program. This year the department had twenty students graduate with undergraduate degrees in the mathematical sciences. In addition, the International Modeling Contest gave the program an opportunity to establish two teams, with honorable mention garnered by both teams. This was the best result for any UCD team since the inception of the modeling contest in 1987. Additionally, the department began a series of Mathematics Events, beginning with *Paul Erdos Day*, attended by nearly 100 students and faculty and ending with a viewing of *Proof* and a discussion of mathematicians in the media. The department started offering a Newsletter to students, alums faculty and friends. This includes a problem section, which has lead to considerable interest in several areas of the mathematical sciences.

Graduate Program. The department had three students complete their doctoral programs and an additional 11 obtain their Master's degree. We had a successful year recruiting, due in large part to the generous donation from Warren Bateman helping the department to establish "Lynn Bateman Assistantships". These awards financially supplement the typical teaching assistantship, and enables the program be more competitive for the best and brightest students looking to attain a doctoral degree. In addition, through this gift, we were able to establish additional "Bateman Fellowships", which offer students time in the program without the responsibility of teaching, assuring success at completing their dissertation in a timely fashion. A very special thanks goes out to Rich Lundgren for his dedicated work with Warren Bateman and help at securing this gift.

Faculty. The department ran two searches, one for a junior faculty member in Computational Mathematics and the other for a senior faculty member in Statistics. We were fortunate to be able to hire Julien Langou as an Assistant Professor. In addition, we obtained a post-doctoral position. The first person to hold this position will be Oscar Vega, whose research interests will enhance the group in Finite Geometry. We also obtained two new (plus $\frac{1}{4}$) Lecturers, bringing the total number of Lecturers in the department to five and greatly reducing the dependency on honorarium. It is the department's intention that these instructorships will be converted to tenure track faculty as funding becomes available.

Research. The department continues to be extremely active in research, authoring or coauthoring over 50 scholarly publications during 2005. The faculty continues to explore external funding opportunities and expects to submit a program proposal for addition graduate student support during the upcoming cycle.

Changes. The department was sorry to see Marcia Kelly leave for "greener" pastures in Boulder; but luckily we were able to find and hire Dawn Arge from Civil Engineering. Both Harvey Greenberg and Rich Lundgren, both instrumental in bringing the department to the level of where it is today have signed retirement agreements, and will be leaving the department within the next few years.

-- Michael Jacobson, Department Chair

Undergraduate Committee, William Briggs, Chair

Committee members: Lynn Bennethum, Bill Briggs (Chair), Roxanne Byrne, Bill Cherowitzo, Mike Kawai, Nathan Kurtz (graduate student), Lance Lana (spring semester), Bruce MacMillan, Clint Shaffer (student, fall semester), Jennifer Thurston (staff support and student advisor).

Overview

During the 2005–2006 academic year, the Undergraduate Committee of the Mathematics Department met regularly and maintained a busy schedule. In addition to handling routine housekeeping jobs (such as course approvals, catalog revisions, exceptions to requirements, textbook adoptions, senior surveys and interviews) the Committee approved several significant changes to the program, which included a major revision of the graduation requirements, a revision of the faculty advising packet, a new design of the undergraduate web page, and the introduction of an online newsletter for undergraduates. These and other initiatives are summarized below.

During this academic year, 87 mathematics majors were enrolled in the program, a number that has been fairly stable for several years. Three students graduated in the summer (2005) semester, four students graduated in the fall semester, and 13 students graduated in the spring semester.

Summer 2005 – Sunmin Lee, Jonathan Stranske (cum laude), Megan Yoder (magna cum laude)

Fall 2005 -- Peter Bindel, Aaron Fansler, Yongxia Kuang (cum laude), William Phare

Spring 2006 -- Clifford Bainter (cum laude), Erik Bray, Kurt Kordle, Tu Dinh, Co Huynh, Kathryn Kelly, Sabrina Khan (cum laude), Jeremy Noe, Leslie Quinn, Megan Sanders, Jorge Silva, Jennifer Ward (summa cum laude), Scott Young

Finally, while the Undergraduate Committee cannot take credit, it is certainly worth noting that Leah Grant, Jeremy Noe, and Michael Morrison, all CU-Denver mathematics majors, received a Meritorious Award in the 2006 Mathematical Contest in Modeling.

Graduate Committee, Richard Lundgren, Chair

Committee Members: Steve Billups, Sarah Boerckel, Leo Franca, Marcia Kelly, Rich Lundgren, Ryan Pedersen, Steve Sain.

This brief report highlights the actions of the Graduate Committee of the CU-Denver Mathematics Department for the 2005-06 academic year and summarizes admission and degree data for the year. The members of the Committee should be commended for their dedication and hard work; it was a productive year.

Overview. Throughout the year, the Committee did routine housekeeping tasks: reviewing applications for admission, making recommendations for TA appointments, coordinating preliminary exams, reviewing current student files to monitor progress, assisting with the biannual HOST Workshop, organizing the annual fall Graduate Student Orientation, maintaining the web site, recommending recipients of the Bateman awards and the Ph.D. fellowship, adjudicating appeals and special requests, and organizing the spring party.

The web page for the graduate program was updated and kept current; it appears to be a valuable recruiting resource. All of these efforts resulted in another strong year for applications (see admission data later in the report). In addition, the department was able to support visits from potential TAs which proved to be very effective; 3 of the 4 students who visited accepted offers.

The major ongoing effort was directed at securing additional funding from Warren Bateman from a previous proposal. Warren Bateman was nominated for the University Medal, which he received in December. At that time the department held a banquet in his honor. Warren committed \$200,000 over the next 4 years in \$50,000 increments which will be used each year as follows:

- \$30,000 will go to Bateman Fellows to support one year of dissertation research and writing for doctoral students
- \$10,000 will go to the Bateman Family Scholarship in Mathematics for recruitment of the most highly qualified applicants to the graduate program in mathematics
- \$10,000 will enhance the Bateman Memorial Teaching Fellowship or the funds can be used to supplement the above mentioned additional increments

Funding. The budget for stipends and in-state tuition for TAs seemed to stabilize somewhat this past academic year. In efforts to be somewhat more competitive the department paid for the fees for all of the teaching assistants for the academic year which totaled \$12,627. Additionally, a decision was made in the spring 2006 that we will increase the TA stipend to \$13,000 per academic year. Even though these initiatives are helpful to the students, we will need to continue our efforts at increasing the size of the stipend so that we will attract a stronger applicant pool since our new TA stipend is still at least \$4,000 below competitive offers.

The 2010 Fund has been stabilized with an annual allocation of \$75,201. This year we received a one time additional supplement of \$37,000 which was used to fund a new Fellowship position for one year and provide additional tuition support. For 2005-2006 we re-directed \$36,000 of student fee funds from the Math Student fees budget to graduate student stipends and will do this again for the academic year 2006-07. The goal is to create line items in the Department budget for individual TA positions that will be reliably funded every year.

The following table summarizes the budget for graduate student support for 2006-07, with 22 Ph.D. students in TA positions. The chair's RA position is budgeted separately. Additionally, the department was able to increase the Ph.D. fellowships to two for a full year. In the figures below there has been no adjustment for resident tuition increases for AY 06/07, so our figures below assume last year's tuition for nine credit hours at \$5366. Fees have been included on a separate line item

<i>Expenses</i>	<i>Total</i>
<i>22 stipends @ \$13,000</i>	<i>\$286,000</i>
<i>22 nine-hour (in state) tuition @ \$5366</i>	<i>\$118,052</i>
<i>10 out of state tuition differentials</i>	<i>114,840</i>
<i>22 fee allocations @ \$650</i>	<i>\$14,300</i>
<i>Total</i>	<i>533,192</i>

Changes in preliminary timelines: This year the faculty voted to change not only the dates of the preliminary exams but the number of times a student has to pass it. The rationale behind the date change is to enable to the department additional time to fill a TA position should a current TA not pass his or her exam and be expelled from the program. The first set of exams is offered in January. The applied analysis preliminary exam will be held the Monday prior to the start of classes, and the applied linear algebra exam is offered the Friday before the start of classes. The second exam offerings follow the spring semester. The linear algebra exam is held the Friday before the start of the summer

semester, and the applied analysis exam is offered the first Friday of the summer semester.

The number of attempts whether you have a bachelor's or master's degree entering the program was to stop the number of appeals that the committee receives.

Students have a maximum of three attempts to pass each exam. The time limit clock starts the first semester a student is admitted into the program.

- Students entering the Ph.D. program without a master's degree have three years to pass both preliminary exams.
- Students entering the Ph.D. program with a master's degree have two years to pass both preliminary exams.

No appeals will be considered if a student fails the respective exam a third time.

Preliminary Exams Outcomes. On the first and second Saturday of every fall and spring semester the applied analysis and applied linear algebra exams are given. In the fall 2005 semester, sixteen students took the applied analysis exam; five passed and eleven failed. One student took and failed the applied linear algebra exam. In the spring 2006 semester, four students took the applied analysis exam; one passed and three failed. Eleven students took the applied linear algebra exam; four passed, 6 failed and one student left shortly after the exam started. The committee members are as follows:

Applied Analysis: Lynn Bennethum, Jan Mandel, Weldon Lodwick

Applied Linear Algebra: Steve Billups, Rich Lundgren, Stan Payne

Application Data

The Graduate Committee reviewed 46 applications for the spring and fall semesters of 2005; 21 students applied for the M.S. program and 25 applied for the Ph.D. program. Of the MS students: 18 students were accepted - 2 accepted offers elsewhere, 3 never notified us of their intent, and 3 were denied. Of the Ph.D. students: 18 students were accepted – 3 accepted offers elsewhere, 1 never notified us of their intent, 1 withdrew their application, and 6 were denied.

Degree Data

December Commencement

M.S. Degrees	Advisor		Ph.D. Degrees	Advisor
Kate Bachman	Lodwick		Abram Jujunashvili	Knyazev
Kevin Barnhart	Lodwick		Robert Rostermundt	Payne
Anthony Burks	Briggs			
Sumbal Julion	Mandel			
Hank Turowski	Lundgren			
Maksum Volkov	Lodwick			

May Commencement

M.S. Degrees	Advisor		Ph.D. Degrees	Advisor
Steve Fisher	Sain		Tessa Weinstein	Bennethum
Chris Harder	Franca			
Andy Kim	Kafadar			
Jeff Matsuo	Briggs			
Alexsis Vantor	Cherowitzo			

Math Clinic, Steve Billups

MATH CLINIC; Steve Billups and Harvey Greenberg

Budget Truck Rental (BTR): Yield Management Pricing for Inventory Location Control:
Harvey Greenberg, Instructor (assisted by Tod Morrison)

This clinic did an extremely thorough job scouring the literature, defining the issues, developing models and laying a very solid foundation for further research.

Presenters: (elected by their classmates) Erik Bray, Leah Grant and Jeff Cathrall.

Other Students: Nathan Acks, Trevor Daly, Katherine Fedde, Lacey Boyd, Lauren Emberty, Kathryn Kelly, Lydie Perry, and Zachary Richards.

Raytheon: Satellite Mission Scheduling with Dynamic Tasking: Steve Billups,
Instructor

This was a continuation of last year's clinic on Satellite Mission Scheduling with Dynamic Tasking. (Assisted by Dmitriy Vassilyev)

Presenters: (selected by their teammates) Leslie Quinn, Jeremy Noe, Cliff Bainter, Scott Young, Jennifer Zakotnik, Sara Morrison, and Armen Zakharyan

Other Students: Nadia Hamoudi, George Shen, Dmitriy Vassilyev, Whitney Rust, John Apodaca, Tu Dinh, and Narimene Lekmine

Colloquium Series

Center for Computational Math Colloquium Series

Wednesday, August 17, 2005, Alastair Spence, Mathematical Sciences, University of Bath, UK, *Preconditioning for inexact inverse iteration*

Monday, August 22, 2005, Abram Jujunashvili, CU-Denver Mathematics Department, *Angles between subspaces*

Monday, October 10, 2005, Gunar Matthies, Fakultat fur Mathematik, Ruhr-Universitat Bochum, Germany, *Numerical simulation of the Rosensweig instability for magnetic liquid in the static and dynamic cases*

Monday, October 31, 2005, Pavel Bochev, Computational Mathematics and Algorithms Sandia National Laboratories, *Mimetic Discrete Models with Weak Material Laws Least Squares Principles Revisited*

Monday, November 28, 2005, Volker John, Universitaet des Saarlandes, *On stabilization techniques for convection--dominated problems*

Monday, December 5, 2005, Jeffrey Anderson, NCAR Data Assimilation Research Section, *Ensemble Filters for Atmospheric Data Assimilation: A Tutorial*

Tuesday, January 17, 2006, Yongtao Zhang, University of California-Irvine, *Computational Analysis of Morphogen Gradients During Embryo Development*

Monday, January 23, 2006, Guus Jacobs, Visiting Assistant Professor-Brown University *Direct Simulation of Mixed Continuum/Discrete Physics with High-order Discontinuous Galerkin Methods*

Monday, January 30, 2006, Chiu-Yen Kao, University of Minnesota, *A Geometric Method for Automatic Extraction of Sulcal Fundi*

Wednesday, February 15, 2006, Plamen Koev, Massachusetts Institute of Technology *Computing Accurate Eigenvalues -- from Electrical Impedance Tomography to 3D Target Recognition*

Monday, February 20, 2006, Thomas F. Russell, National Science Foundation, Division of Mathematical Sciences, *Adjoint methods are particle methods: Implications for Eulerian-Lagrangian modeling of multiphase multicomponent transport*

Monday, February 27, 2006, Hai Lin, CU-Denver Chemistry Department, *An Accurate and Efficient Computational Tool for Understanding Enzymatic Reactions*

Monday, March 13, 2006, James Liu, Colorado State University, Department of Mathematical Sciences and Computer Science, *Characteristic Finite Element Methods for Convection-Diffusion-Reaction Equations*

Wednesday, April 5, 2006, Julien Langou, University of Tennessee, *On Recent Developments of Numerical Analysis*

Thursday, April 6, 2006, Leonid Berlyand, Department of Mathematical Sciences and Materials Research Institute, Penn State University, *Discrete Network Approximation for Singular Behavior of the Effective Viscosity of Concentrated Suspensions*

Monday, April 17, 2006, Thomas Lundy, Virtuallaboratory.net, *A New Matrix Approach to Real FFTs and Convolutions of Length 2^k*

Discrete Math Seminar Series

Monday, September 12, 2005, Mike Ferrara, CU-Denver Mathematics Department, *Degree Sequences, Part I*

Monday, September 19, 2005, Stefaan De Winter, Ghent University, Belgium, *Semi-Pseudo-Ovoids*

Monday, September 26, 2005, Mike Ferrara, CU-Denver Mathematics Department, *Degree Sequences, Part 2: The Degree Stripping Method*

Monday, October 3, 2005, Stan Payne, CU-Denver Mathematics Department, *Cayley's Theorem - A short course in combinatorics*

Monday, October 10, 2005, Art Busch, Lehigh University, *Counting Hamiltonian Paths and Cycles in Tournaments*

Monday, October 17, 2005, William Cherowitzo, CU-Denver Mathematics Department, *Constructing the Tits Ovoid from an Elliptic Quadric*

Monday, October 24, 2005, Mark Siggers, Thompson Rivers University (Kamloops, B.C.), *Ramsey Theory*

Monday, October 31, 2005, Rich Lundgren, CU-Denver Mathematics Department, *Interval Tournaments*

Monday, November 14, 2005, Rob Rostermundt, CU-Denver Mathematics Department, *A description of all elation groups of the Hermitian surface $H(3, q^2)$ over a finite field of characteristic 2*

Monday, November 28, 2005, David E. Brown, Utah State University, *Euler's Constant, Harmonic Numbers, the Riemann Zeta Function and a very (times 10^{35}) Persistent Worm*

Monday, January 30, 2006, Mark Miller, Marietta College, *(t,k)-Prisms, Toruses, and a Famous Theorem From Projective Geometry ... How a Finite Geometer Found Himself Writing a Graph Theory Paper*

Monday, February 6, 2006, Oscar Jenkins, CU-Denver Mathematics Department, *Affine Space derived from certain Generalized Quadrangles*

Monday, February 13, 2006, Oscar Vega, University of Iowa Mathematics Department, *jj...j-planes*

Monday, February 20, 2006, John Weigand, CU-Denver Mathematics Department, *Ramsey-Type Numbers and Independence Ratios*

Monday, February 27, 2006, G. E. Moorhouse, University of Wyoming, *Using the Borsuk-Ulam Theorem*

Monday, March 13, 2006, Charles Cable, Allegheny College, *How Many Minimal King Sets?*

Tuesday, March 28, 2006, Stan Payne, CU-Denver Mathematics Department, *The Transfer Matrix Method*

Monday, April 10, 2006, Oscar Jenkins, CU-Denver Mathematics Department, *Searching For Generalized Quadrangles With a Regular Point*

Monday, April 24, 2006, Jesse Gilbert, CU-Denver Mathematics Department, *On the Irregularity Strength of Digraphs*

Monday, May 1, 2006, Rich Lundgren, CU-Denver Mathematics Department, *Are Medical Students Getting Their (Best Possible) Match, Can Digraphs Save Lives, and What is the Mapping Magic Behind Mapquest?*

Optimization Seminar Series

Monday, September 19, 2005, Anton Evgrafov, Center for Aerospace Structures, Dept. of Aerospace Engineering Sciences, University of Colorado, Boulder, *Topology Optimization in Fluid Mechanics*

Monday, October 3, 2005, Darrell Whitley, Dept. of Computer Science, Colorado State University, *No Free Lunch: A 10 Year Perspective*

Monday, October 17, 2005, Don Kraft, Computer Science Department, Louisiana State University, *Modeling and Optimization in Information Retrieval*

Monday, October 31, 2005, Luis Melara, Colorado College, Department of Mathematical Sciences, *A Homotopy Method in Regularization of Total Variation Image Denoising*

Monday, November 14, 2005, Kate Bachman, CU-Denver Mathematics Department, *Image Registration by Maximization of Mutual Information*

Monday, November 28, 2005, H. Paul Williams, Dept. of Operational Research, The London School of Economics, *Searching for the Dual of an Integer Programme*

Monday, December 5, 2005, Tod Morrison, CU-Denver Mathematics Department, *Contemporary Risk Metrics: VaR & CVaR*

Tuesday, February 7, 2006, Stephen C. Billups, CU-Denver Mathematics Department, *Satellite Mission Scheduling with Dynamic Tasking*

Thursday, March 16, 2006, Ariela Sofer, George Mason University, Department of Systems Engineering and Operations Research, *Optimization in Medical Diagnosis and Treatment*

Tuesday, March 28, 2006, Thomas Vossen, CU-Boulder Leeds School of Business, A *Branch-and-Cut Approach for Artificial Intelligence Planning*

Tuesday, April 25, 2006, James P. Kelly, OptTek Systems, Inc., Simulation Optimization, *New Advances for Real World Optimization*

Statistics Colloquium Series

Friday, February 3, 2006, James J. Filliben, National Institute of Standards and Technology, *Statistical Approaches in the NIST World Trade Center Analysis*

Friday, February 10, 2006, Mark L. Labovitz, CU-Denver Mathematics Department and Lipper & Associates, *The Determinants of Flows into Retail Bond Funds*

Thursday, March 2, 2006, Michael W. Trosset, College of William and Mary, *Multidimensional Scaling Algorithms for Large Data Sets*

Appendices

Appendix A – Department Roster

Staff

<i>Russ Boice</i>	IT Technician
<i>Dana Franklin</i>	Statistics Administrative Assistant
<i>Marcia Kelly</i>	Program Assistant
<i>Jennifer Thurston</i>	Administrative Assistant

Faculty

<i>Lynn Bennethum</i>	Mathematical modeling of porous media, constitutive modeling of swelling porous media, continuum mechanics, numerical solution of partial differential equations (Ph.D. 1994, Purdue University)
<i>Stephen C. Billups</i>	Optimization, complementarity problems, machine learning, data mining, computational biology (Ph.D. 1995, University of Wisconsin-Madison)
<i>William L. Briggs</i>	Mathematical modeling and biology, differential equations, numerical analysis, mathematics education (Ph.D. 1976, Harvard University)
<i>Roxanne Byrne</i>	Mathematics education, use of technology in the classroom (Ph.D. 1972, University of Colorado)
<i>William E. Cherowitzo</i>	Discrete mathematics, finite geometry, combinatorics, (Ph.D. 1983, Columbia University)
<i>Leopoldo Franca</i>	Finite element methods, multiscale phenomena, fluids, materials, acoustics (Ph.D. 1987, Stanford University)
<i>Kathryn Fraughnaugh</i>	Graph theory and heuristic search (Ph.D. 1982, University of Houston)
<i>Harvey J. Greenberg</i>	Optimization, modeling and analysis, computational biology (Ph.D. 1968, The Johns Hopkins University)
<i>Michael S. Jacobson</i>	Graph theory and Combinatorics, scheduling problems, network analysis (Ph.D. 1980, Emory University)

- Karen Kafadar* Robust methods, exploratory data analysis, two-dimensional smoothing, methods of microarray data, statistical methods for problems in health sciences and industry (Ph.D. 1979, Princeton University)
- Andrew V. Knyazev* Numerical linear algebra, eigenvalue problems, numerical solution of partial differential equations, large scale and parallel computations, domain decomposition, multigrid methods, finite element methods, homogenization (Ph.D. 1985, Russian Academy of Science)
- Weldon A. Lodwick* Optimization, linear and nonlinear programming, interval analysis and self-validation, artificial intelligence, applications in medicine, natural resources, industrial processes (Ph.D. 1977, Oregon State University)
- Richard Lundgren* Applied graph theory and combinatorial matrix theory with application to large matrix models and communication networks (Ph.D. 1971, Ohio State University)
- Jan Mandel* Numerical solution of partial differential equations, large scale computations, supercomputing and parallel methods, iterative methods for problems in structural mechanics and acoustics (Ph.D. 1983, Charles University, Czechoslovakia)
- Stanley E. Payne* Finite geometry, generalized quadrangles, ovals (Ph.D. 1966, Florida State University)
- Toyla Puhalski** Probability theory, queuing theory, large deviation theory (Ph.D. 1984, Moscow Institute of Physics and Technology)
- Stephan R. Sain*** Simulation, queuing theory, mathematical modeling (Ph.D. 1994, Rice University)
- Burt Simon* Simulation, queuing theory, mathematical modeling (Ph.D. 1980, University of Michigan)

* on sabbatical

** on leave

VISITING FACULTY

- Barbara Bailey* Continued spatial and temporal modeling, diagnostics and visualization for non linear statistical methods. (Ph.D. 1996, North Carolina State University)

Oleg Poliannikov

Applied probability, partial differential equations,
numerical methods (Ph.D. 2003, North Carolina State
University)

POST DOC

Michael Ferrara

Combinatorics and graph theory (Ph.D. 2005, Emory
University)

INSTRUCTORS

Tom Kammerling

Michael Kawai

Lance Lana (spg 06 only)

Bruce MacMillan

Gary Olson (spg 06 only)

Appendix B – Undergraduate Committee Activity

Summary of Committee Work

The initiatives undertaken by the Committee this academic year are summarized below. Outstanding issues and work to be continued are also noted.

1. New graduation requirements. The Undergraduate Committee unanimously approved and the department also approved a revision of the requirements for the B.S. in Mathematics. The proposal was to remove all but two of the current seven options within the degree program. The two remaining options will be the mathematics education and actuarial options, both of which are associated with licensure or certification. Under the new system, students will have three choices; they could satisfy the requirements for

- a. the current general (or unspecified) option,
- b. the current mathematics education option, or
- c. the current actuarial option.

The options that are dropped will be replaced by *areas of interest* with a course list for each area. The area course lists will give students guidance if they wish to focus in specific areas of mathematics. In fact, new areas of interest can be included, such as mathematical biology.

Several arguments led to the change. The current B.S. program has seven options plus the general core option. This system makes advising difficult to those not familiar with all of the requirements and policies. It leads to many requests for exceptions, often because students cannot schedule a course required for their option. There is also anecdotal evidence that students choose an option not for its content, but for ease or convenience. The new system avoids some of these problems by vastly simplifying the requirements.

ACTION: The new requirements go into effect with students who declare themselves mathematics majors during or after the 2007 fall semester. Advanced notice of the change has already been posted on the web site. Further publicity about the change should be distributed during the 2006–07 academic year. College and campus advising offices should also be notified. Lists of course for areas of interest need to be distributed and posted.

2. Communication with majors. During this academic year, 87 mathematics majors were enrolled in the program, a number that has been fairly stable for several years. Communication with mathematics majors has always been less than adequate. While email lists are updated regularly, they appear to reach only 80% of majors. The Committee launched several initiatives to improve communication. The undergraduate program web site was redesigned and maintained. The vision and initiative of Bill Cherowitzo, with help from Jennifer, led to the creation of an online newsletter. With six issues already produced, the newsletter highlights department news, includes student and faculty profiles, provides humor, solicits opinions, and lists various opportunities for

majors. The inception of the newsletter coincided with the Problem-of-the-Month competition, which seems to have an increasing following.

ACTION: Despite apparent low readership (or response rates to opinion polls), we must continue the newsletter through the next academic year. It is a positive development in the undergraduate program and will eventually produce results.

3. Advising packet. Early in the fall semester, the Committee produced an advising packet to improve the effectiveness of faculty advising (packet included in the Appendix). A clear division of advising responsibilities (see table below) requires faculty members not on the Undergraduate Committee to advise *only* mathematics majors. The packet also featured a new *Petition for Exception to Requirements* form (see Appendix). This form is to be completed by students and their advisor when an exception to the requirements (for example a course substitution) is requested. The form is considered for approval by the Undergraduate Committee chair. A list of advisors and advisees is also posted and updated regularly.

Non-majors	Associate Chair, Undergraduate Chair
Walk-ins (non-appointment)	Undergraduate Committee faculty members
Math minors	Jennifer
Transfer credits	Associate Chair, Undergraduate Chair
**** Mathematics majors ****	**** Mathematics faculty members ****

ACTION: The packet should be updated regularly and faculty members should be reminded of their advising duties.

4. Guaranteed transfer and core curriculum approval. The Committee submitted the paperwork for placing nine undergraduate courses on the state guaranteed transfer list and to place the same courses on the list of mathematics courses that satisfy the quantitative requirement of the core curriculum. All courses were approved for both lists: Math 1070, Math 1080, Math 1110, Math 1120, Math 1130, Math 1401, Math 2411, Math 2421, Math 2380. Math 1010 had been approved earlier for both lists.

ACTION: The extensive paperwork for these requests should be kept on file and resubmitted when necessary.

5. Rules. Many rules and policies that govern the undergraduate program reside in the brain of former Undergraduate Committee chair Roxanne Byrne and not recorded anywhere. Throughout the year an attempt was made to commit these rules and policies to paper. The resulting rules document (see Appendix) is a continual work in progress and should be updated regularly.

ACTION: Update rules document regularly.

6. Placement exams. Mike Kawai is in charge of administering the Accuplacer exam and did much work to administer the exam and streamline the process. Ideally students should take the Accuplacer exam before registering for Math 1070/1110 or Math 1401; if they pass then they should be registered for those courses by hand. This policy is not fully in place; it needs to be publicized and enforced. The complete policy on Accuplacer exams is in the Appendix.

During the fall semester, it was decided to allow the ACT exam to serve as a placement instrument with the following passing scores. The complete set of placement exam cutoffs is as follows:

- **MATH 1070 (Algebra for Social Science):** Elementary Algebra Accuplacer Score of 85 or a score of 24 on the math portion of ACT, if taken in the last three years.
- **MATH 1110 (College Algebra):** Elementary Algebra Accuplacer Score of 85 or a score of 24 on the math portion of ACT, if taken in the last three years.
- **MATH 1401 (Calculus 1):** College Level Math Accuplacer score of 80 or a score of 27 on the math portion of ACT, if taken in the last three years.

ACTION: Work should continue on implementing an efficient Accuplacer process.

7. Math 3300/3301. A two-semester sequence in operations research was proposed by Harvey Greenberg and approved by the department. Math 3300 deals with deterministic and Math 3301 deals with stochastic problems and models.

8. Senior surveys and interviews. Senior surveys were administered in December and May, while the senior interview was overlooked in December. It was decided that starting in May 2006; the senior interview (previously an optional, poorly attended group interview) would be replaced by a required one-on-one scripted interview conducted by the students' choice of Jennifer, the graduate student member of the Undergraduate Committee, or two adjunct faculty members. The results of the 2005–06 senior survey and the results of the new May 2006 senior interview are included in the Appendix.

ACTION: We must continue to administer both the survey and the interviews; compile or summarize the results; and use the results to make changes; outcomes assessment in action.

9. Discrete math option. A new discrete math option in the B.S. program was approved by the department. With the new requirements beginning in fall 2007, this option will become an area of interest.

10. Special events. In an effort to foster community among students, the Committee organized two special events. In the fall, the film *N is a Number* about Paul Erdős, followed by reminiscences by Stan Payne and Mike Jacobson, attracted about 80 people (or perhaps it was the pizza). In the spring, a showing and discussion of the film *Proof* by film critic Howie Movshovitz was stimulating, but attracted only about 30 people.

ACTION: Let's make these events a tradition and try for one per semester. Timing and scheduling appear to be critical.

11. Math Clinic. The future and effectiveness of the Math Clinic was discussed several times during the year. In the end no changes were proposed, in part because two clinics in the spring semester were well attended.

ACTION: We should continue to monitor the Math Clinic and strive for regular offerings with good *outside* clients.

12. Calculator policy. It was agreed to make a formal policy to require calculators in Math 1070, Math 1080, Math 1110, Math 1120, Math 1130, Math 1401, Math 2411, and Math 2421. The next course catalog should include this requirement.

ACTION: Be sure the requirement is enforced and the instructors have training in the use of calculators.

13. Outside groups. During the year, the Committee met with Cheryl Kaas of the campus advising office; with Renee Wilson and Jeri Bray of the Auraria Book Center; and with faculty members of the College of Business. The latter meeting, on April 27, produced several specific proposals, all of which need to be pursued during the 2006–07 academic year (see notes in the Appendix).

ACTION: Follow up on the recommendations of the April 27 meeting.

14. Problem of the Month. The Problem-of-the-Month became a regular department feature, which attracted a few responses each month. As the solver of the most monthly problems, Megan Sawyer will represent the Mathematics Department in a problem solving contest at MathFest this summer.

ACTION: Despite low response rate, we should continue to hold the contest, in the belief that it will eventually attract attention. Can offer problems biweekly?

15. (No) IB transfer policy. The College asked if we could devise a transfer policy for International Baccalaureate (IB) mathematics courses. A total of two students during the entire year applied for such transfer and in evaluating those courses, it became clear that there is no clear correspondence between IB courses and CU-Denver courses. Furthermore IB students can take various combinations of mathematics courses at various levels. We have help the position that the few requests for transfer of IB courses should be done on a case-by-case basis by the Undergraduate Chair. (Lynn Hoffman in CLAS was the contact person on this issue.)

Summary of Mathematics Department Policy on IB Courses:

Students who come to CU-Denver with IB mathematics courses should be referred to the Mathematics Department, where their transcript will be evaluated on a case-by-case basis. Credit for IB courses should be offered only at the calculus level or above.

16. Syllabi and course outlines. It is important to keep updated course outlines and syllabi on file, in the office and online. The text-independent syllabi submitted for the state guaranteed transfer process can be used for lists of topics (see Appendix).

Appendix C – Graduate Committee Activity

Summary of Committee Work

Changes in preliminary timelines: This year the faculty voted to change not only the dates of the preliminary exams but the number of times a student has to pass it. The rationale behind the date change is to enable the department additional time to fill a TA position should a current TA not pass his or her exam and be expelled from the program. The first set of exams is offered in January. The applied analysis preliminary exam will be held the Monday prior to the start of classes, and the applied linear algebra exam is offered the Friday before the start of classes. The second exam offerings follow the spring semester. The linear algebra exam is held the Friday before the start of the summer semester, and the applied analysis exam is offered the first Friday of the summer semester.

The number of attempts whether you have a bachelor's or master's degree entering the program was to stop the number of appeals that the committee receives.

Students have a maximum of three attempts to pass each exam. The time limit clock starts the first semester a student is admitted into the program.

- Students entering the Ph.D. program without a master's degree have three years to pass both preliminary exams.
- Students entering the Ph.D. program with a master's degree have two years to pass both preliminary exams.

No appeals will be considered if a student fails the respective exam a third time.

Preliminary Exams Outcomes. On the first and second Saturday of every fall and spring semester the applied analysis and applied linear algebra exams are given. In the fall 2005 semester, sixteen students took the applied analysis exam; five passed and eleven failed. One student took and failed the applied linear algebra exam. In the spring 2006 semester, four students took the applied analysis exam; one passed and three failed. Eleven students took the applied linear algebra exam; four passed, 6 failed and one student left shortly after the exam started. The committee members are as follows:

Applied Analysis: Lynn Bennethum, Jan Mandel, Weldon Lodwick

Applied Linear Algebra: Steve Billups, Rich Lundgren, Stan Payne

Funding Data AY 05-06 (NTD: Nonresident tuition differential)

Name	Position		Name	Position
Nathan Acks	T.A.		Cathy Jorgensen	T.A.
Kevin Barnhart	T.A. (fall 05 only)		Andy Kim	T.A.
Deborah Batista	T.A. (spg 06 only)		Nathan Kurtz	T.A.
Sarah Boerckel	T.A.		Jeff Matsuo	T.A. –fall 05 only
Katherine Fedde	T.A.		Sara Morrison	T.A., N.T.D
Steve Flink	Bateman Teaching (fall 05) - TA spg 06		Tod Morrison	T.A.
Jesse Gilbert	Chair's RA		Ryan Pedersen	T.A.
Chris Harder	PhD Fellowship		Olga Pillitteri	T.A.
Angela Harris	T.A., N.T.D.		Bedrich Sousedik	T.A., N.T.D.
Oscar Jenkins	T.A.		Timothy Vis	T.A., N.T.D.
Jonathon Beezley	R.A. (Mandel)		Vaibhav Kulkarni	R.A., N.T.D. (Mandel/Franca)
Abram Jujunashvili	R.A., N.T.D. (Knyazev) fall 05 only		Ilya Lashuk	R.A., N.T.D. (Knyazev) T.A.-spg 06 only
Min Kim	R.A., N.T.D. (Mandel)			

Appendix D. Student Credit Hours – Academic Year 05/06

Term	Under-graduate	Graduate	Total Credit Hours
Summer 05	1320	75	1395
Fall 05	5155	560	5715
Spring 06	4287	531	4818

Student Credit Hours

2005-2006

	1000 Level	2000 Level	3000 Level	4000 Level	5000 Level	6000 Level	7000 Level	8000 Level
Summer 2005	733	275	213	99	60	0	0	6
Fall 2005	3216	960	675	304	330	93	53	84
Spring 2006	2632	1029	297	329	261	165	45	60

Appendix E – External Research Funding & Proposals

EXTERNAL RESEARCH FUNDING, 2005-06				
Funding Source	Project Title	New/Cont Date	Principal Investigator	Amount of Award
NSF	NARCCAP Using Multiple GCMs and RCMs to Simulate Future Climates and their Uncertainty	New	Steve Sain	\$31,564
Budget Truck Rental	Math Clinic: Yield Management Pricing for Inventory Location Control Cooperative Agreement	New	Harvey Greenberg	\$18,000
NSF	Advances in Experimental Particle Physics through Statistical Methodology & Data Analysis	New	Karen Kafadar	\$99,998
National Aeronautics & Space Adm (Jet Propulsion Laboratory)	Interactive Analysis of Heterogeneous Data to Determine the Impact of Weather on Crop Yield	New	Steve Sain	\$42,028
NCAR	Geophysical Statistics Project	Cont	Steve Sain	\$10,559

U.S. Department of Army	Data-Base Detection of Potential Terrorist Attacks: Statistical & Graphical Methods	New	Karen Kafadar	\$102,982
Raytheon	Satellite Payload Scheduling with Dynamic Tasking	New	Steve Billups	\$15,000
NSF	Rocky Mountain – Middle School Math/Science Partnership	Cont	Doris Kimbrough/ co-pi: Mike Jacobson Funds several department faculty	\$12, 549,000

EXTERNAL RESEARCH PROPOSALS, 2005-06				
Funding Source	Project Title/Date	New/Cont	Principal Investigator	Comments
Raytheon Company	Satellite Mission Scheduling with Dynamics Tasking Math Clinic	New	Steve Billups	
National Aeronautics & Space Adm (CU Boulder)	A Service Oriented Architecture for Creating, Deploying and Managing a Sensor-Enabled Wildland Fire Decision Support Product	New	Jan Mandel	
NIH (through HSC)	Measurement in Community-	New	Karen Kafadar	

	Based Services for a Homeless Population			
NSF	AMC-SS Collaboration Research: Data Assimilation by High- performance Predictor- corrector Stochastic Filters	New	Jan Mandel	
NSF	Multiscale Modeling for Turbulent Flows	New	Leo Franca	
NSF	Petrov-Galerkin Enriched Methods for Porous Media	New	Leo Franca	
Budget Truck Rental	Math Clinic: Yield Management Pricing for Inventory Location Control	Cont	Harvey Greenberg	
NSF	Locally Optimal Preconditioned Eigenvalue Solvers	New	Andrew Knyazev	

Appendix F – Publications

L.S. Bennethum, What Can We Learn From Compressibility Experiments?, in Proceedings of Poromechanics III-Biot Centennial (1905-2005), Proceedings, 3rd biot Conference on poromechanics, Abousleiman, Y., Chang, A.G.-D., and Ulm, F.-J. (eds), A.A. Balkema, London, 2005

S. Billups, A Dynamic Model of Differential Human Capital and Criminal Activity, *Economical*, 72 (2005): 655-681 (with H.N. Mocan and J. Overland).

W. Briggs, A measure of college student course engagement, with Mitch Handelsman, Nora Sullivan, Annete Towler, *Journal of Educational Research* 98 (3), 2005, pp. 184-191.

W. Briggs, Optimizing Domino Chain Reactions, with Stan Wagon, Adrienne Pontarelli, and Stephen Becker, *UMAP Journa*, (26) 1, 2005, pp. 37 – 48.

W. Briggs, *Bicycles, Ants, and Clocks: Problem Solving for Undergraduates*, SIAM Publications, 2005 (170 pages).

W. Briggs, *Understanding and Using Mathematics: A Quantitative Reasoning Approach*, Addison-Wesley, 2005, 3rd edition, (750 pages), with Jeff Bennett

W. Briggs, Teaching Quantitative Literacy, Proceedings and Invited Address DELTA '05: Fifth Southern Hemisphere Conference on Undergraduate Mathematics and Statistics Teaching and Learning, Fraser Island, Queensland Australia.

W. Cherowitzo, Hyperfocused Arcs, with Leann Holder, *Bull. Belg. Math Soc.* (Simon Stevin)

L.P. Franca, L.S. Bennethum, M.S. Chen, J.L. Coen, C.C. Douglas, C. Johns, M. Kim, A.V. Knyazev, R. Kremens, V. Kulkarni, J. Mandel, G. Qin, A. Vodacek, J. Wu, W. Zhao, and A. Zornes, Towards a dynamic data driven application system for wildfire simulation, *Lecture Notes in Computer Science* 3515, Springer, pp. 632-639.

L.P. Franca, A.L. Madureira and F. Valentin, Towards multiscale functions: Enriching finite element spaces with local but not bubble-like functions. *Computer Methods in Applied Mechanics and Engineering*, 194: 3006-3021

L.P. Franca, A.L. Madureira, L. Tobiska and F. Valentin. Convergence analysis of a multiscale finite element method for singularly perturbed problems. *Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal*, 4: 839-866

- L.P. Franca**, J.V.A. Ramalho and F. Valentin, Multiscale and residual-free bubble functions for reaction-advection-diffusion problems. *International Journal for Multiscale Computational Engineering* 3: 297-312
- L.P. Franca**, J.V.A. Ramalho and F. Valentin, Multiscale Finite Elements in Fluids, in p. 29, *Proceedings of the Thirteenth Conference on Finite Elements for Flow Problems*, April 4-6, 2005, Swansea, Country of Wales, UK
- H. Greenberg**, Robust Optimization of Contaminant Sensor Placement for Community Water Systems, *Mathematics Programming, Series A*, vol 107, no 1-2, pp. 337-356, posted online at Springer, 2005
- M. Jacobson**, J. Hutchinson, A. Kezdy, J. Lehel, D. West, The Visibility Number of a Graph, *SIAM J. Discrete Math*, 18 (2005), no 3. 462-471.
- M. Jacobson**, R. Faudree, R. Gould, Characterizing Forbidden Triples implying Hamiltonian; for sufficiently large graphs, *Discussiones Mathematicae Graph Theory* 25 (3) (2005) 273-289.
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- M. Jacobson**, R. Faudree, R. Gould, M.S. Lesniak, Minimal Degree and (k,m) – Pancyclic Ordered Graphs, *Graphs and Combinatorics*, 21 (2005) 197-211.
- M. Jacobson**, R. Faudree, R. Gould, M.S. Lesniak, A. Saito, Toughness, Degrees and Two-Factors, *Discrete Math* 300 (2005) 218-2224.
- K. Kafadar**, P.C. Prorok, Computational methods in medical decision making: To screen or not to screen?, *Statistics in Medicine* 24: 569-581 (2005)
- K. Kafadar**, B. Leeman-Castillo, K. Corbett, C. Darr, K. Erbacher, J. Glazner, R. Gonzales, S. Wong, J. Maselli, A. Sauaia, The Minimizing Antibiotic Resistance in Colorado Project: Impact of patient education in improving antibiotic use in private office practices, *Health Services Research* 40 (1), 101-116 (2005)
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- K Kafadar**, J. Beall, The Proportion of NUM Pre-56 Titles Represented in OCLC WorldCat, *College & Research Libraries* 66 (5), 431-435
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A. Knyazev, S. Billups, J Mandel, Introduction, *Applied Numerical Mathematics*, 54, 2 (2005) 105-106

A. V. Knyazev and M. E. Argentati, Implementation of a Preconditioned Eigensolver Using HyPre, Technical report UCD-CCM 220, April 2005, at the Center for Computational Mathematics, University of Colorado at Denver.

A. V. Knyazev, I. Lashuk, M. E. Argentati, E. Ovchinnikov and, Preconditioned Eigensolver LOBPCG in hyPre and PETSc Proceedings of the 16th International Conference on Domain Decomposition Methods. 2005. Published as a technical report UCD-CCM 222, 2005, at the Center for Computational Mathematics, University of Colorado at Denver.

AV. Knyazev and M. E. Argentati, Majorization for Changes in Angles Between Subspaces, Ritz values, and graph Laplacian spectra. Published as a technical report UCD-CCM 223, 2005, at the Center for Computational Mathematics, University of Colorado at Denver.

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Lodwick, W. and Bachman, K. "Solving large-scale fuzzy and possibilistic optimization problems: Theory, algorithms and applications," *Fuzzy Optimization and Decision Making*, 4:4 October, 2005, pp 257 - 278.

Lodwick, W. and Fonte, Cidalia "Modeling the fuzzy spatial extent of geographical entities," in Cobb, M., Petry, F., and Robinson, V. (editors), *Fuzzy Modeling with Spatial Information for Geographical Problems*, Springer-Verlag, 2005.

W.A. Lodwick, and K.D. Jamison, "Theory and semantics for fuzzy and possibilistic optimization," *Fuzzy Logic, Soft Computing and Computational Intelligence* (Eleventh International Fuzzy Systems Association World Congress), July 28-31, 2005, Beijing, China, Volume III, pp. 1805-1810.

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S. Payne, J. Thas, The stabilizer of the Adelaide oval, *Discrete Mathematics*, 294 (2005), 161-173,

S. Sain, D. Scott, “Multi-dimensional density estimation,” In Rao, C.R., Wegman, E., and Solka, J.~(eds.), *Handbook of Statistics 24: Data Mining and Data Visualization*, New York: Elsevier Publishing. (2005)

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S. Sain, D. Mazzoni, K. Wagstaff, HARVIST: A system for agricultural and weather studies using advanced statistical models, *proceedings of the Earth-Sun Systems Technology Conference* (2005)

S. Sain, R. Furrer, D. Nychka, T. Wigley, Spatial hierarchical Bayes models for AOGCM climate projections, *Environmental and Ecological Statistics* (2005)

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S. Sain, D. Minnotte, D, Scott, Visualization of multivariate densities, in *Handbook of Computational Statistics III* (2005)

S. Sain, D. Nychka, R. Furrer, *Experiments on the Earth: Smoothing and Spatial Statistics for Geophysical Applications using R*, Springer Verlag (2005)

Appendix G – Faculty Service

Department Committee Assignments (* denotes chair)

Executive Committee

Mike Jacobson*
Lynn Bennethum
Steve Billups
Bill Briggs
Rich Lundgren
Steve Sain

Merit Committee

Stan Payne*
Bill Briggs
Lynn Bennethum
Steve Sain
Mike Jacobson (ex-officio)

Graduate Committee

Rich Lundgren*
Steve Billups
Sarah Boerckel (*student*)
Leo Franca
Marcia Kelly
Ryan Pedersen (*student*)
Steve Sain

Undergraduate Committee

Bill Briggs*
Barb Bailey
Lynn Bennethum
Roxanne Byrne
Bill Cherowitzo
Mike Kawai
Nathan Kurtz (*student*)
Lance Lana
Bruce MacMillan
Jennifer Thurston
Stan Payne

Applied Analysis Prelim Committee

Jan Mandel*
Lynn Bennethum
Bill Briggs

Linear Algebra Prelim Committee

Steve Billups*
Rich Lundgren
Stan Payne

By-Laws

Bill Cherowitzo*
Roxanne Byrne
Weldon Lodwick

Search Committee

Computational Math

Lynn Bennethum*
Steve Billups
Jonathon Beezley (*student*)
Mike Jacobson
Jan Mandel
Steve Sain

Statistics

Mike Jacobson*
Steve Billups
Karen Kafadar
Steve Sain
Andy Kim (*student*)

Seminars

Computational Math – Leo Franca
Discrete Math – Stan Payne
Optimization – Steve Billups
Statistics – Karen Kafadar

Auraria Library Liaison
Stan Payne

Service by Individual Faculty Member

Bennethum, Lynn:

Associate Chair
Interim Undergraduate Chair (summer 2005)
Executive Committee
Undergraduate Committee
Applied Analysis Prelim Committee (Spring 2005, Fall 2005),
Course Captain for College Trig (S'05)
Course Captain for Business Calculus (F'05)
Chaired Computational Math Search Committee (F'05)

Instructor Search Committee (F'05)
Reviewed 3 papers for Transport in Porous Media
Reviewed 3 paper for Advances in Water Resources
Reviewed 2 papers for Macromolecular Theory and Simulation
Reviews 1 paper for Journal on Numerical Analysis
Reviewed 13 proposals for NSF review panel
Chair of the Society of Industrial and Applied Mathematics Activity Group on
Geosciences. Jan. 2003 – present
Co-organizer of SIAM Conference on Mathematical and Computational Issues
in Geosciences, Avignon, France, June, 2005

Billups, Stephen

Graduate Committee, 2005
Executive Committee, 2005
Bylaws Committee, 2005
Linear Algebra Preliminary Exam Committee, (chair, 2005)
Merit Committee
Faculty Search Committee
Coordinator of Optimization Seminar
Director, Center for Computational Biology
Sciences planning subcommittee on Systems Biology (Fall 2005)
Academic Master Planning, subcommittee on External Relations. (Fall 2005)
Member of Advisory Board for the Computational Bioscience Program at
UCDHSC School of Medicine
Co-chair 3rd Annual Rocky Mountain Regional Bioinformatics Conference,
Aspen, 2005

Briggs, William

Member of the editorial board of the Education Section of SIAM Review.
Bill Simmons Scholarship Committee
President's Teaching Scholars Committees
Vice-President for Education and Chair of the Education Committee of SIAM

Byrne, Roxanne

Director of Online Tutoring Program
EPPC
Faculty Assembly
Faculty Assembly Executive Committee
Online Faculty Advisory Committee
Academic Personnel Committee
Women's Committee
Selection Committee for Teaching with Technology Award
Personnel Committee
Degree Audit Steering Committee
SIS Replacement Committee

Chaired the planning of the Woman's Faculty Development Symposium, March 2005.

Cherowitzo, William

Math Major Newsletter – Editor
Faculty Assembly Educational Planning and Policy Committee (EPPC) – Chair
Faculty Assembly member
Faculty Assembly Executive Committee
Chancellor's Program Discontinuance Policy Committee
Faculty Senate Privilege and Tenure Committee-Panel 3 Chair, fall 2005
3 papers refereed for various journals

Franca, Leo

CCM Executive Committee
Refereed numerous articles for 11 journals
Organizer of the Finite Element People Home webpage

Greenberg, Harvey

CLAS: Dean's Advisory Committee
Referee 5 papers & 2 proposals
Advisory Board of the Center for Research Excellence in Bioinformatics and Computational Biology, New Mexico State University
Session Chair: OR Methods for Computational Biology, INFORMS Computing Society, Jan 5-7, 2005
Minisymposium Chair: Computational Biology, SIAM Optimization Group, May 15-18, 2005

Jacobson, Michael

Ex-officio member of Undergraduate and Graduate Committees
Ex-Officio member of the Merit Review Committee
Budget and Planning Committee (member)
Academic Standards Committee (member)
Member of the Search Committee for the AVC – Research
Member of RM-MSMSP Management Team, Leadership Team, and Mathematics Instructional Team (Chair)
Referee for numerous journals
MAA-Traveling Lecturer
Organizing Committee for the Cumberland Conference
Reviewer for NSA, NCERC and Math Reviews

Kafadar, Karen

Referee of numerous manuscripts in 4 journals
Chair, Technometrics Management committee
National Academy of Science Committee on Applied & Theoretical Statistics
American Statistical Association Board of Directors, Publications representative
Chair, ASA Biopharmaceutical Journal Task Force

External Review Committee, Bowling Green State University
Chair, ASA Outstanding Applications Award Committee
Chair, ASA Advisory Committee for Statistics in Biopharmaceutical Research
Chair, COPSS Tukey Award Committee
Member, ASA Gertrude Cox Award Committee
Technical Program Committee, 38th Interface Symposium
Associate Editor, Statistics in Medicine
Associate Editor, Computational Statistics and Data Analysis
Associate Editor, JASA – Theory & Methods
Director, Statistics Consulting Service

Knyazev, Andrew

Merit Committee
Coordinator of CCM Seminar
CCM Executive Committee
Steering Committee of the Presidents Teaching and Learning Collaborative

Lodwick Weldon

Faculty Assembly
Panel Chair P&T (Jan. 1, 2005 – June 30, 2005)
Chair of P&T (July 1, 2005 – June 30, 2007)
More than 15 papers – Fuzzy Sets and Systems (mostly) and for IFSA '05
Chair of the Special Interest Group on Fuzzy and Possibilistic Optimization
for IFSA (International Fuzzy Systems Association)
Co-organizer of two special session at IFSA '05, Beijing, China – July 2005
On the program board for IFSA '09 to be held in Lisbon, Portugal
Director of South Englewood Sanitation District No. 1

Lundgren, Richard

PhD Committee(Chair in spring)
Referee for numerous journals

Mandel, Jan

Auraria Advisory Library Committee
Director, CCM
Referee for various proposals for NSF and DOE
Member of review panel for NSF
Member of review panel for DOE
Solvers International, Inc.

Payne, Stan

Refereed eleven reports to eight different journals;
Reviewed two book manuscripts that had been submitted for publication.
Submitted three solicited reviews of published articles to Mathematical Reviews

Sain, Steve

Applied Statistics Certificate Coordinator
Ad hoc Committee on Salary
Journal of Statistical Planning and Inference
Journal of Computational and Graphical Statistics
Chair-elect, ASA Section on Statistical Computing
NSF Review Panel
Organized a topic contributed session for JSM 2005
Volunteer consultant for Lipper – A Reuters Company