MARGARET STAWISKA-FRIEDLAND, PH.D.

(aka Małgorzata Stawiska)

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Professional: **Mathematical Reviews**
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Ann Arbor, MI 48103
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SYNOPSIS

Doctoral-level mathematician working mainly in one and several complex variables, with broad-based education and experience that includes degrees in mathematics and philosophy and teaching a variety of college mathematics and statistics courses (from remedial to graduate level) as well as professional editorial work for the research database Mathematical Reviews/MathSciNet.

Main research interests/areas:

1. Holomorphic dynamics
2. Potential and pluripotential theory
3. History of mathematics in Central and Eastern Europe in the 19th and 20th centuries

PERSONAL

U. S. citizen since 2007

EDUCATION

1. **Doctor of Philosophy in Mathematics**, 2001
   Northwestern University, Evanston, Illinois
   Dissertation: "Repellers for regular polynomial endomorphisms in $\mathbb{C}^k$;
   Advisor: John M. Franks

2. **Master of Arts in Philosophy (with minor in education)**,
   Jagiellonian University, Cracow, Poland
   Thesis: "Modalities in the philosophy of Roman Ingarden";
   Advisor: Jerzy Perzanowski

3. **Master of Science in Mathematics**,
   Jagiellonian University, Cracow, Poland
   Thesis: "Sets preserving Markov inequality in $\mathbb{R}^n$";
   Advisor: Wiesław Pleśniak

EMPLOYMENT HISTORY

- ***Associate Editor***, Mathematical Reviews/MathSciNet (American Mathematical Society), Ann Arbor, Michigan ***06/2011-current***
- ***Robert D. Adams Visiting Assistant Professor***, Department of Mathematics, University of Kansas, Lawrence, Kansas 08/2008-05/2011
- ***Visiting Assistant Professor; Lecturer***, Dept. of Mathematics, Statistics, & Computer Science, University of Ilinois at Chicago, Chicago, Illinois 08/2004- 05/2005; 08/2005-08/2007
- ***Research Assistant Professor, VIGRE Program***, Department of Mathematics, Purdue University, West Lafayette, Indiana 08/2001 - 05/2004
- ***University Fellow; Teaching Assistant***, Department of Mathematics, Northwestern University, Evanston, Illinois 09/1996-08/1997; 09/1997-06/2001

OTHER INSTITUTIONAL AFFILIATIONS

– University of Michigan in Ann Arbor

research affiliate 08/2011-current

– Jagiellonian University, Kraków, Poland

visiting scholar 03/2017-06-2017

– German Science Foundation Research Center Matheon, Technical University, Berlin, Germany

visiting scholar 10/2007-04/2008

– Institut Mittag-Leffler, Stockholm, Sweden

postdoctoral fellow 05/2002-06/2002

PUBLICATIONS

[1] (with S. Domoradzki and M. Zarichnyi) On Algebra in Lwów in the years 1870-1939, Österreichische Gesellschaft für Wissenschaftsgeschichte, XIII Österreichisches Symposion zur Geschichte der Mathematik, Tagung 1 bis 7 Mai (2016), Miesenbach (Niederösterreich)

[2] "Prace Kazimierza Żorawskiego z teorii iteracji" [The works of Kazimierz Żorawski in iteration theory], *Antiquitates Mathematicae* 10 (2016), 121-132

[3] (with S. Domoradzki) "Distingushed graduates in mathematics of the Jagiellonian University on Kraków in the years 1918-1939", Part I and Part II, in: *Technical Transactions (Czasopismo Techniczne)*, Fundamental Sciences (Nauki Podstawowe), Cracow University of Technology, 2-NP, 112 (2015), pp. 98-115, 117-141

[4] (with S. Friedland) "Some approximation problems in semi-algebraic geometry", in: Constructive Approximation of Functions, Banach Center Publications, vol. 107 (2015), 133-147

[5] (with S. Domoradzki) "Lucjan Emil Böttcher and his mathematical legacy", in: Mathematics without boundaries. Surveys in pure mathematics. Edited by P. Pardalos and T. Rassias. Springer-Verlag, 2014, 127-161

[6] "Lucjan Emil Böttcher (1872–1937)– the Polish pioneer of holomorphic dynamics", *Technical Transactions (Czasopismo Techniczne)*, Fundamental Sciences (Nauki Podstawowe), Cracow University of Technology, 1-NP, 2014, 233-243

[7] (with M.M. Branker) "Lelong classes on toric manifolds and a theorem of Siciak", *Ann. Polon. Math.* 106 (2012), 97-105.

[8] (with E.A. Gavosto) "Parabolic explosions in the families of complex polynomials"; in: Essays in mathematics and its applications. Dedicated to the 80th Anniversary of Stephen Smale, 141-149, Springer, Heidelberg, 2012.

[9] (with Y. Okuyama) "Potential theory and a characterization of polynomials in complex dynamics", *Conform. Geom. Dyn.* 15 (2011), 152-159

[10] "Liouville's theorem with parameters and asymptotics of certain rational integrals in differential fields", *Commentationes Mathematicae* Vol. 50, No.2(2010), 155-159

[11] (with M.M. Branker) "Weighted pluripotential theory on projective algebraic manifolds", *Annales Polon. Math.* 95 (2009), 163-177

[12] "Parabolic explosions via Puiseux theorem", in: Mathematische Forchungsinstitut Oberwolfach, Report No. 17/2008, Arbeitsgemeinschaft "Julia Sets of Positive Measure", Organised by Xavier Buff (Toulouse) and Arnaud Chéritat (Toulouse), p. 14-16

[13] "Attracting divisors on projective algebraic manifolds", *Annales Polon. Math.* 91, no. 2-3, 263-270, 2007

[14] "Holomorphic maps on $\mathbb{CP}^k$ with attracting hypersurfaces and pluricomplex Green functions of their repellers, *Complex Var. Elliptic Eq.*, 51(7), 675-681. July 2006

[15] "On regular polynomial endomorphisms of $\mathbb{C}^2$ without bounded critical orbits, *Central European Journal of Mathematics*, 3(3), 398- 403. 2005

[16] "'Riemann-Hurwitz formula and Morse Theory, *Contemporary Mathematics* (p-Harmonic Equation and Recent Advances in Analysis, ed. by P. Poggi- Corradini), 370, 209-211. 2005

[17] "Plurisubharmonic Lyapunov functions, *Michigan Math. Journal*, 52, 131- 140. 2004

[18] "Chebyshev polynomials on equipotential curves for a quadratic Julia set, *Univ Iag. Acta Math., XXXIII*, 191-198. 1996

[19] "Semantic properties of the modal calculus S9, (In Polish, with English and Russian summaries), *Research Reports of the Academy of Economics in Cracow*, 365, 5-12. 1992

PREPRINTS

(with Leokadia Bialas-Ciez and Marta Kosek) On approximation of planar sets by polynomial Julia sets, https://arxiv.org/pdf/1709.06630.pdf

On a completeness problem from the paper "Contractive probability metrics and asymptotic behavior of dissipative kinetic equations" by J. A. Carrillo, G. Toscani, Riv. Mat. Univ. Parma (7) 6 (2007), 75-198, arxiv.org/pdf/1609.00343.pdf

(with Y. Okuyama) A characterization of polynomials among rational functions in non-archimedean and complex dynamics, arXiv:1508.01589

SCHOLARLY TRANSLATIONS

From Polish into English:

Lucjan Emil Böttcher: Zasady rachunku iteracyjnego (część pierwsza i część druga) [Principles of iterational calculus (part one and two)], *Prace Matematyczno-Fizyczne*, vol. X (1899-1900), pp. 65-86, 86-101.

Lucjan Emil Böttcher: Zasady rachunku iteracyjnego (część III) [Principles of iterational calculus (part III)], *Prace Matematyczno-Fizyczne*, v. XII(1901), pp. 95-111.

Lucjan Emil Böttcher: Zasady rachunku iteracyjnego (część III, dokończenie) [Principles of iterational calculus (part III, completion)], *Prace Matematyczno-Fizyczne*, v. XIII(1902), pp. 353-371

Available at https://www.academia.edu/19809381

OTHER RECENT WRITINGS

"Polish mathematics at the JMM 2015 in San Antonio", *Anitquitates Mathematicae*, vol. 9 (2015), 181-192 (in Polish, a conference report)

"Remarks on the book 'The fantastic laboratory of Dr. Weigl' by Arthur Allen" , *Anitquitates Mathematicae*, vol. 8 (2014), p. 169-181 (in Polish; a book review)

(with S. Domoradzki and M. Zarichnyi) Lucjan Böttcher: A forgotten Polish mathematician and his influence on modern mathematics, Österreichische Gesellschaft für Wissenschaftsgeschichte, XII Österreichisches Symposion zur Geschichte der Mathematik, 'Mathematik– verschollen und gefunden', Tagung 4 bis 10 Mai (2014), Miesenbach (Niederösterreich), Herausgeber: Dr. Christa Binder, Kurzfasungen der Vorträge, pp. 222-226 (extended abstract)

(with S. Friedland) "Best approximation on semi-algebraic sets and k-border rank approximation of symmetric tensors", preprint, arXiv:1311.1561

various answers and comments on research-level topics in mathematics and in history of mathematics and science, websites MathOverflow and History of Mathematics and Science, http://mathoverflow.net/users/14493/margaret-friedland, http://hsm.stackexchange.com/users/3434/margaret-friedland

RESEARCH IN PROGRESS:

1. Green functions, equilibrium measures and energies: towards generalizations of a theorem of A. O. Lopes in higher-dimensional holomorphic dynamics (with Y. Okuyama)

2. Approximation of measures and functions on Julia sets

3. Theorems of Lelong-Bremermann type on toric manifolds

4. Polish Mathematics and Mathematicians in World War I (with S. Domoradzki)

COURSES TAUGHT

– UNIVERSITY OF KANSAS

  – Theory of Functions of a Complex Variable (Math 800)– Spring 2011 (a graduate course)
  – Several Complex Variables (Math 905)- Fall 2010 (a graduate course)
  – Elementary Statistics (Math 365)- Fall 2008 (2 sections), Spring 2009, Fall 2009, Spring 2010
  – Calculus (Math 115)- Fall 2009, Spring 2011

– UNIVERSITY OF ILLINOIS AT CHICAGO

  – Calculus III (Math 210) – Fall 2006
  – Calculus II (Math 181) – Spring 2005; Fall 2005 (2 sections); Fall 2006

- Calculus I (Math 180) – Fall 2004; Spring 2007
- Linear Algebra (Math 310) – Spring 2006
- Intermediate Algebra (Math 090) – Fall 2004

– PURDUE UNIVERSITY

- Graduate Complex Analysis for Engineers (MA 525) – Spring 2004
- Introduction to Real Analysis (MA 341) – Spring 2002 and Fall / Spring 2003
- Linear Algebra (MA 265) – Fall / Spring 2002
- Linear Algebra with Applications (MA 351) – Fall 2002
- Accelerated Calculus (MA 173) – Fall 2001

– NORTHWESTERN UNIVERSITY

- Linear Algebra (MA 218) – Spring 2001-

Special Teaching Experience and Curriculum Development

1. UNIVERSITY OF KANSAS

I wrote my own homework assignments and exams. I posted course materials online and administered an extra-credit test online. I used Web-based interactive applets and reading assignments to enhance understanding of concepts in probability and statistics. I revived the course in several complex variables after a several year hiatus.

2. UNIVERSITY OF ILLINOIS AT CHICAGO

Intermediate Algebra was a remedial class. In Fall 05, one of my Calculus II section consisted of students enrolled in the Emerging Scholars Program geared towards enhancing representation of minorities among math and science students. In Spring 06, I wrote an internal review of a course textbook used for the linear algebra class. In Spring 07, I gave 4 lectures on L^2-cohomology of complex manifolds within a graduate topics course taught by L. Maxim.

3. PURDUE UNIVERSITY

For the real analysis course, I wrote my own syllabus with homework assignments and exams. For the advanced Linear algebra course, I wrote my own homework assignments and exams. The basic linear algebra course had assignments that required use of Matlab. The complex analysis course was a graduate level course for engineering students.

4. NORTHWESTERN UNIVERSITY

My linear algebra course was taught for the School of Continuing Studies. I choose a textbook, wrote syllabus,homework assignments and examinations by myself. Also, I completed a seminar on college teaching in Winter 1999 and served as a TA for an advanced undergraduate financial mathematics course in Spring 1999.

FUNDING

1. Awarded an AWM-NSF Travel Grant to participate in 2010 Fall Eastern Sectional AMS Meeting - Meeting # 1062 in Syracuse, NY, USA, 10/2010

2. Awarded *Royal Swedish Academy of Sciences* scholarship to participate in the program, "Conformal maps and probability" at the *Mittag-Leffler Institute, Stockholm, Sweden* — 5/2002 – 6/2002

3. Selected for post-doctorate research supported by National Science Foundation (NSF) *Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE)* Grant at Purdue University — 8/2001 – 5/2004

4. Awarded support by organizing institutions to participate in research and training programs:

- Arbeitsgemeinschaft "Julia sets of positive measure", Mathematisches Forschungsinstitut Oberwolfach, Germany — 4/2008
- Thematic program, "Holomorphic Dynamics, Laminations and Hyperbolic Geometry," Field's Institute, Toronto, Canada — 3/2006
- Workshop in Pluripotential Theory, Pacific Institute of Mathematical Sciences and Banff International Research Center, Banff, Alberta, Canada — 9/2004
- NATO Advanced Study Institute in "Morse-theoretical Methods in Nonlinear Analysis and Symplectic Topology," Université de Montréal, Montréal, Canada — 6/2004 - 7/2004
- Selected and supported by Association of Women in Mathematics to participate and present poster in Special AWM Session, Joint AMS-MAA Meeting, New Orleans, LA — 1/2001

PROFESSIONAL COMMUNITY SERVICE AND OUTREACH

1. Serving as the editor of the section "History and Philosophy of Mathematics" and the English language editor for the journal "Antiquitates Mathematicae" (published by the Polish Mathematical Society), since June 2014

2. Translated from Polish into English the main work of L. E. Böttcher: "Zasady rachunku iteracyjnego (część pierwsza i część druga) [Principles of iterational calculus (part one and two)], Prace Matematyczno Fizyczne, vol. X (1899-1900), Zasady rachunku iteracyjnego (część III) [Principles of iterational calculus (part III)], Prace Matematyczno Fizyczne, v. XII (1901), p. 95-111 Zasady rachunku iteracyjnego (częśćIII, dokończenie) [Principles of iterational calculus (part III, completion)], Prace Matematyczno Fizyczne, v. XIII(1902), pp. 353-371.

3. Reviewed manuscripts submitted for publications in professional journals, including Ergodic Theory and Dynamical Systems, Bulletin of the Belgian Mathematical Society-Simon Stevin, Publicacions Matematiques, Annales Polonici Mathematici, and Procedings of the PAU Commission for the History of Science

4. Actively participating in Math Overflow and History of Science and Mathematics Stack Exchange, interactive online fora for research questions and answers

5. Wrote reviews for *Mathematical Reviews* of mathematical publications written in English, French, Russian, Ukrainian and Polish (2004-2011)

6. Supplied recommendations for students applying for scholarships, summer research programs, graduate schools, and work-study positions; since 2001

7. Presented introductory math talks to math majors and other interested audience (Liftoff VIGRE seminars at Purdue, 2002)

8. Helped coordinate and grade a math competition for grade and high schools (a Math Awareness Month event at KU , 04/03/2009)

9. Served as an assistant faculty advisor for the student AWM chapter at KU, 2009/10, 2010/11

10. Helped with organization of Tenth Prairie Analysis Seminar at KU (sent out announcements, prepared and gave a pre-conference tutorial for graduate students)

11. Provided editorial assistance on the book by S. Domoradzki: The Growth of Mathematical Culture in the Lvov Area in the Autonomy Period (1870-1920), Matfyzpress, Praha 2011, History of Mathematics, vol. 47

12. Provided editorial assistance on the special volume of Technical Transactions (Cracow University of Technology) containing articles presented at the conference "Perception of Science in Central and Eastern Europe 1850-1920" (Polish Academy of Sciences, Jagiellonian University and other institutions), Kraków, Poland, September 20-22, 2013

13. Served on the scientific and organizational committee of the conference "Exact Sciences and Mathematics in Central-Eastern Europe from 1850 until WWII, Kraków, June 11-13, 2015

14. Provided editorial assistance on the special volume of Technical Transactions (Cracow University of Technology) containing articles presented at the conference "Exact Sciences and Mathematics in Central-Eastern Europe from 1850 until WWII, Kraków, Poland, June 11-13, 2015"

15. Served on the organizational committee of the conference "Development of Mathematics and Related Sciences in Central-Eastern Europe in the 20th century, Kraków, September 13-15, 2017

TALKS

Invited Seminar Talks (since 2008)

- "On Tadeusz Wazewski's achievements in topology", Seminar in History of Mathematics, Jagiellonian University, May 8, 2017
- "Mathematical Reviews– questions and answers", Mathematics Colloquium, Uppsala University, Sweden, March 24, 2017
- "Potential theory and a characterization of polynomials in complex dynamics", Analysis Seminar, Uppsala University, Sweden, March 23, 2017
- "Completeness of the space of probablility measures in $\mathbb{R}^N$ with respect to some metric related to Fourier transform", Seminar in Approximation Theory, Jagiellonian University, March 8, 2017
- "Some approximation problems in semi-algebraic geometry", Analysis and Goemetry Seminar, Central Michigan University, Mt. Pleasant, MI, January 27, 2017
- "Potential theory and a characterization of polynomials in complex and non-archimedean dynamics", University of Stony Brook, Stony Brook, NY, April 8, 2016
- "Potential theory and a characterization of polynomials in complex and non-archimedean dynamics", Seminar in Complex Analysis, Dynamics and Geometry, Department of Mathematics, University of Michigan, Ann Arbor, MI, March 28, 2016
- "Potential theory and a characterization of polynomials in complex and non-archimedean dynamics", Department of Mathematical Sciences, Northern Illinois University, DeKalb, IL, October 6, 2015
- "Logarithmic energy and convergence of measures", Seminar in Approximation Theory, Department of Mathematics, Jagiellonian University, Kraków, Poland, June 10, 2015
- "Lucjan Emil Böttcher– a forgotten pioneer of holomorphic dynamics", graduate dynamical systems seminar, Tufts University, April 24, 2015
- "Potential theory and a characterization of polynomials in complex dynamics", seminar in analysis, Department of Mathematics, University of Toledo, Toledo, OH, October 2012
- "Potential theory and a characterization of polynomials in complex dynamics", Seminar in Approximation Theory, Department of Mathematics, Jagiellonian University, Kraków, Poland, May 2012

– "Lelong classes on toric manifolds and a theorem of Siciak", seminar in several complex variables, Department of Mathematics, University of Michigan Ann Arbor, December 2011 (2 talks)

– "Potential theory: from complex plane to Kähler manifolds", Faculty Seminar, University of Kansas, 11/30/2010

– "Attracting divisors on projective algebraic manifolds", Seminari di Sistemi Dinamici Olomorfi, Universita di Pisa and Centro De Giorgi, Pisa, Italy, 06/22/2010

– "Iteration of quadratic polynomials and the Mandelbrot set", Student and Faculty Seminar, University of Pittsburgh at Bradford, 03/01/2010

– "Weighted pluripotential theory on complex manifolds", Indian Institute of Technology, Mumbai, India, 12/24/2009

– "Attracting divisors on projective algebraic manifolds", Faculty Seminar, Pennsylvania State University at Abington, 12/15/2009

– "Attracting divisors on projective algebraic manifolds", University Lecture Series, Department of Mathematics and Statistics, Wichita State University, Wichita, KS, 10/24/2008

– "Weighted pluripotential theory on complex manifolds", seminar in analysis, Department of Mathematics and Statistics, Wichita State University, Wichita, KS, 10/24/2008

– "Attracting divisors on projective algebraic manifolds", seminar in complex analysis, Universität Wien, Austria, 02/22/2008

– "Weighted pluripotential theory on complex manifolds", Seminar in Approximation Theory, Department of Mathematics, Jagiellonian University, Kraków, Poland, 01/09/2008

Conference / Workshop Talks (since 2008)

– "On Lagrange polynomials in approximating planar sets by Julia sets" (poster presentation, joint with Leokadia Bialas-Ciez and Marta Kosek), Midwest Workshop in Asymptotic Analysis, IUPUI, Indianapolis, IN, October 10, 2017

– "Distance degree in semialgebraic geometry", mini-symposium "Euclidean Distance Degree: Theory, Computation and Applications", 2017 SIAM Conference on Applied Algebraic Geometry, Atlanta, GA, August 4, 2017

– "Completeness of the space of probability measures on $\mathbb{R}^N$ in a certain Fourier-based metric", Geometry of Banach Spaces and Related Topics, Jagiellonian University, Kraków, June 8-10

– "Tadeusz Ważewski's early works in topology", Special Session on History and Philosophy of Mathematics, Canadian Mathematical Society Winter Meeting 2016, Niagara Falls, Canada, December 3, 2016

– "Potential theory and a characterization of polynomials in complex and non-archimedean dynamics", 27th Nordic Congress of Mathematicians and 20th Nordan Conference (special session), Stockholm, Sweden, March 16-20, 2016

– "The road to the Retract Theorem: Tadeusz Ważewski's early works in topology", Special Session on History of Mathematics, AMS Fall Central Sectional Meeting, Loyola University, Chicago, IL, October 3-4, 2015

– "Distinguished graduates in mathematics in Jagiellonian University in the years 1918-1939", Conference on Exact Sciences and Mathematics in Central-Eastern Europe, Kraków, June 11-13, 2015

– "Marian Smoluchowski's views on women in science" (poster presentation, joint with Zofia Gołąb-Meyer), Conference on Exact Sciences and Mathematics in Central-Eastern Europe, Kraków, June 11-13, 2015

– "PhD recipients and other distinguished graduates in mathematics in Jagiellonian University (Kraków) in the years 1918-1939", AMS Special Session on Mathematics in Poland, Joint Mathematics Meeting, San Antonio, TX, January 10-13, 2015

– "Some approximation problems in semi-algebraic geometry", the conference "Constructive Approximation of Functions" (Polish Academy of Sciences, Jagiellonian University and other institutions), Będlewo, Poland, June 29-July 5, 2014

– "Lucjan Emil Böttcher (1872-1937): the Polish pioneer of holomorphic dynamics", the conference "Perception of Science in Central and Eastern Europe 1850-1920" (Polish Academy of Sciences, Jagiellonian University and other institutions), Kraków, Poland, September 20-22, 2013

– "Lelong classes on toric manifolds and a theorem of Siciak", the conference in several complex variables in honor of professor Józef Siciak, Jagiellonian University, Kraków, Poland, July 2011

– "Potential theory and a characterization of polynomials in complex dynamics", AMS Fall Central Sectional Meeting, Notre Dame University, Notre Dame, IN, November 5-7, 2010

– "Currents in complex analysis and dynamics: an introduction" (pre-conference tutorial for graduate students), Tenth Prairie Analysis Seminar, University of Kansas, Lawrence, KS, October 29-30, 2010

– "Potential theory and a characterization of polynomials in complex dynamics", Tenth Prairie Analysis Seminar, University of Kansas, Lawrence, KS, October 29-30, 2010

– "Robin functions on toric manifolds", AMS Fall Eastern Sectional Meeting, Syracuse University, Syracuse, NY, October 2-3 2010

– "Robin functions on toric manifolds", Midwest Seminar in Several Complex Variables, Purdue University, October 11, 2009

– "Weighted homogeneous pluripotential theory", Colloque Internationale d'Analyse Complexe, CIRM Luminy, France, July, 13, 2009

– "Flip bifurcation with complex coefficients" (poster presentation, joint with Estela Gavosto), Advances in Low Dimensional Dynamics, Stony Brook University, June 8-13, 2009

– "Weighted homogeneous pluripotential theory", AMS Special Session on Complex Dynamics and Complex Function Theory, Joint Mathematics Meetings, January 8, 2009, Washington, DC

– "Explosion functions in the quadratic family", Arbeitsgemeinschaft "Julia sets of positive measure", Oberwolfach, Germany, 04/01/2008

ADDITIONAL SKILLS

1. Languages:

Polish (native); English and Russian (fluent);
Ukrainian (moderate speaking and writing skills; fluent reading);
French (fluent reading; moderate speaking);
Swedish (basic speaking, reading, and writing with refresher);
German (basic speaking and reading);
Latin (basic reading and grammar)

2. Computer Skills:

LaTeX typesetting; basic knowledge of Unix; maintaining and updating a personal web page; using Blackboard educational software for posting course materials, administering assignments and keeping grade records; using proprietary applications for selecting papers, assigning reviewers and editing reviews for Mathematical Reviews/MathSciNet