Curriculum Vitae
Charles Ira Delman

February 27, 2017

Education

Ph.D, Mathematics, Cornell University, January 1992
 Dissertation: Essential Laminations in Knot Complements
 Adviser: Allen Hatcher

M.A.T., Tufts University, November 1983
A.B., Harvard University, June 1982

Professional Positions

2002-: Professor, Department of Mathematics & Computer Science, Eastern Illinois University.

2011-2014: Coordinator, Graduate Program in Mathematics, Eastern Illinois University.

2003-2009: President, Eastern Illinois University Chapter, University Professionals of Illinois, Local 4100, IFT, AFT, AFL-CIO.

2002: Visiting Scholar, Indiana University, Bloomington, IN.

2000-2003: Vice President, Eastern Illinois University Chapter, University Professionals of Illinois, Local 4100, IFT, AFT, AFL-CIO.

1997-2003 Coordinator (beginning with program inception), Mathematics Department Honors Program, Eastern Illinois University.

1997-2002: Associate Professor, Department of Mathematics, Eastern Illinois University.

1994-1997: Assistant Professor, Department of Mathematics, Eastern Illinois University.

1993-1994: Assistant Professor (visiting), Pitzer College, Claremont Colleges, Claremont, CA.

1991-1993: Visiting Lecturer, Department of Mathematics, The Ohio State University, Columbus, Ohio.

1990-1991: Pew Lecturer, Department of Mathematics, Cornell University, Ithaca, N.Y.

1988-1989: Exchange Scholar, Department of Mathematics, University of California at Berkeley.

1985: Instructor, summer program for minority and underprivileged students, Cornell Office of Minority Educational Affairs, Cornell University, Ithaca, NY.

1984-1989: Teaching assistant or grader, Department of Mathematics, Cornell University, various courses, including : engineering calculus, honors level advanced calculus and linear algebra, and graduate complex analysis.

1983-1984: Math teacher, DeWitt Junior High School, Ithaca, N.Y.

Courses Taught

- *Graduate Seminar*, MAT 5990, EIU. Under my guidance the graduate students studied parts of William Thurston's *Geometry and Topology of 3-Manifolds*, John Milnor's *Topology from a Differential Viewpoint*, Milnor's classic paper, "On the total curvature of knots," and the *Primer on Mapping Class Groups*, by Benson Farb and Dan Margalit. In a later version of the seminar, students chose articles from the Mathematical Monthly and similar journals on which to give presentations.

- *Topics in Mathematics - Catastrophe Theory*, MAT 5335 (graduate), EIU. Advanced differential calculus, quadratic forms, and the Morse Lemma; the Reduction Lemma; determinacy, co-dimension, and the Thom Classification Theorem.

- *Topics in Elementary and Middle Level Mathematics - Geometry*, MAT 5810 (graduate), EIU. Symmetry, transformation groups, tessellations, and projections, with applications to such topics as as topography and photography.

- *Mathematical Topics for Secondary School Mathematics - Geometry*, MAT 5635 (graduate), EIU. A Kleinian approach to Euclidean and affine geometry, with a focus on conic sections.

- *Topics in Mathematics - Topology and Geometry of Surfaces*, MAT 5335 (graduate), EIU. The definition of a surface, the topological classification of surfaces, and the modern theory of hyperbolic, Euclidean, and elliptic structures as it applies to surfaces.

- *Topics in Mathematics - Algebraic Geometry*, MAT 5335 (graduate), EIU. Fundamentals of the study of affine and projective algebraic varieties: subsets of multi-dimensional real and complex space defined by polynomial equations.

- *Real Variables*, MAT 5301 (graduate), EIU.

- *Topology*, MAT 5220 (graduate), EIU.

- *Algebra and Geometry for Middle Level Teachers*, MAT 4920 (graduate/advanced undergraduate), EIU.

- *History of Mathematics*, MAT 4900 (graduate/advanced undergraduate), EIU.

- *Topology*, MAT 4855 (graduate/advanced undergraduate), EIU.

- *Mathematical Analysis*, MAT 4860 (graduate/advanced undergraduate), EIU.

- *Topics in Elementary and Middle Level Mathematics - Calculus*, MAT 4810 (graduate/advanced undergraduate), EIU. Modeling dynamical systems through differential change; sequences and infinite sums; differentiation and anti-differentiation: their meaning and applications.

- *Honors Seminar - Topology*, MAT 4666, EIU (advanced undergraduate).

- *Honors Seminar - Set Theory and Logic*, MAT 4666 (advanced undergraduate), EIU.

- *Honors Thesis - Knot Theory*, MAT 4644 (advanced undergraduate), EIU.

- *Honors Research - Knot Theory*, MAT 4555 (advanced undergraduate), EIU.

- *Independent Study - Differential Topology*, MAT 4490 (advanced undergraduate), EIU.

- *College Geometry I & II*, MAT 3271 & 3272 (undergraduate), EIU. Synthetic classical geometry: projective, neutral, Euclidean, and hyperbolic.

- *Probability and Statistics I & II*, MAT 3701 & 3702 (undergraduate), EIU.

- *Abstract Algebra*, MAT 3530 (undergraduate), EIU.

- *Foundations of Mathematics*, MAT 2800 (undergraduate), EIU.

- *Calculus and Analytic Geometry I, II & III*, MAT 1441, 2442, & 2443 (undergraduate), EIU.

- *Introductory Geometry*, MAT 2420 (undergraduate), EIU. Designed primarily for prospective elementary and middle level teachers.

- *Finite Mathematics*, MAT 2120 (undergraduate), EIU.

- *Introductory Mathematics and Numeration*, MAT 1420 (undergraduate), EIU. Designed primarily for prospective elementary and middle level teachers.

- *Precalculus Mathematics*, MAT 1400 (undergraduate), EIU.

- *College Trigonometry*, MAT 1310 (undergraduate), EIU. Designed primarily for technology students.

- *College Algebra*, MAT 1271 (undergraduate), EIU.

- *Problem Solving*, MAT 1170 (undergraduate), EIU.

- *Mathematics: a human endeavor*, MAT 1160 (undergraduate), EIU.

Research & Scholarship

Award

- 2004 Carl B. Allendoerfer Award, awarded by the Mathematical Association of America, "in recognition of the publication of the noteworthy expository paper, 'A Tale of Three Circles,' *Mathematics Magazine*, February 2003, pp. 15-32."

  The press release from the MAA stated, "The new perspectives and the proof linking the three geometries to the three configurations of three intersecting circles is an example of elegant mathematics written in an accessible and clear style."

Publications

- C. Delman and G. Galperin, At tale of three circles (Russian translation), *Mathematical Enlightenment (Third Series) #20*, The Moscow Center for Continuous Mathematical Education, Moscow (Russia), 2016, pp. 111-134.

- C. Delman and G. Galperin, A tale of three circles, *Mathematics Magazine*, Vol. 76, No. 1, February 2003, 15-32.

- C. Delman and G. Galperin, Billiards with pockets: a separation principle and bound on the number of orbit types, *Communications in Mathematical Physics*, 230 (2002), 463-483.

- C. Delman and R. Roberts, Alternating Knots Satisfy Strong Property P, *Commentarii Mathematici Helvetici* 74 (1999) 276-397.

- C. Delman, *Essential Laminations and Dehn Surgery on Two-bridge Knots*, Topology and its Applications 63 (1995) 201-221.

- C. Delman, *Constructing Essential Laminations and Taut Foliations Which Survive All Dehn Surgeries*, preprint.

Papers & Book in Preparation

- C. Delman and R. Roberts, Alternating knots satisfy the L-space knot conjecture.

- C. Delman and R. Roberts, Persistently Foliar Montesinos Knots.

- C. Delman and R. Roberts, Montesinos knots satisfy the L-space knot conjecture.

- C. Delman and G. Galperin, Hyperbolic geometry as we would see it.

- C. Delman, *Patterns of Structure and Argument: a guide to mathematical thinking*, available on my Web site. I have used this book as the text for MAT 2800, *Foundations of Mathematics*, several times with great success, refining it based on my teaching experience. I intend to add a few additional chapters for completeness, after which I may seek to publish a bound version with a non-profit publisher; however, I intend to keep it available free of charge under a *Creative Commons* or similar copyright.

Research in Progress

- Application of topological and categorical methods to the critical study and practice of social organization, collective decision-making, and fundamental social change.

- Critique of economic theory from a mathematical and systemic perspective.

- Dynamics on orbifolds; billiard dynamics (with G. Galperin).

Invited Talks and Visits

- *Persistently foliar knots, II*, Special Session on Decomposing 3-Manifolds, 1121st Meeting of the American Mathematical Society, Brunswick, ME, September 24-25, 2016.

- *Persistently Foliar Knots, Branched Coverings, and Heegard-Floer Homology: Rational Tangles, Montesinos Knots, and Beyond* (joint work with Rachel Roberts), Washington University Geometry & Topology Seminar, St. Louis, MO, January 22, 2015.

- *A Separation Principal for Geodesics on Cone Manifolds with Pockets*, Geometry, Topology, and Dynamics Day, a conference in honor Gregory Galperin's 60th birthday, Eastern Illinois University, April 20, 2013. (Full disclosure: I am a co-organizer of this conference; however, I was asked to speak by one of the other organizers.)

- *Understanding Poverty Systemically*, EIU College of Sciences *ScienceFest* Mini-symposium, April 5, 2013.

- Oklahoma State University, Stillwater, OK; collaborative work with Tao Li, May 23-31, 2003.

- *Laminar 3-manifolds: an introduction, I and II*, Topology Seminar, Indiana University, Bloomington, IN, January 22, 29, 2002.

- *Essential Laminations and Dehn Surgery on Knots, I, II, and III*, Max Neumann Topology Seminar, University of Illinois at Urbana-Champaign, February 2, 9, and 16, 1999.

- *A topologist's excursion into billiard dynamics*, Max Neumann Topology Seminar, University of Illinois at Urbana-Champaign, October 6, 1998.

- *Totally Linked Positive Braids Realize the Braid Index*, special session on Pictorial Methods in Low-Dimensional Topology, American Mathematical Society meeting, Manhattan Kansas, 27-28 March, 1998.

- *Why Knot?: Connections Between Knot Theory and Just About Everything*, address to the Illinois Section of the Mathematical Association of America, 22 March 1997.

- *Forcing Algebra Students to Think*, 48th Annual Meeting of the Illinois Council of Teachers of Mathematics, Springfield, IL, 18 October 1996.

- *Detecting the Unknot in Polynomial Time*, special session on the Topology of 3-Manifolds, AMS meeting, Iowa City, IA, 22 March 1996.

- *Alternating Knots Have Property P*, special session on Low-Dimensional Topology, Joint Meeting of the American Mathematical Society and the Sociedad Matematica Mexicana, Guanajuato, Mexico, 30 November 1995.

- *Forcing Algebra Students to Think*, Annual Conference on the Teaching of Mathematics, Charleston, IL, 25 April 1995.

- *The Numerology of Persistent Laminations*, special session, AMS sectional meeting, Brooklyn, NY, 9 April, 1994.

- *The Numerology of Persistent Laminations*, Topology Seminar, University of California at Santa Barbara, 25 January 1994.

- *Knots and 3-manifolds: some recent developments*, Geometry - Topology Seminar, Universtiy of Southern California, Los Angeles, 18 November, 1993.

- *Constructing Persistent Laminations*, Topology Seminar, California Institute of Technology, Pasadena, 25 June, 1993.

- *Using Essential Laminations and Dehn Surgery to Study Three-dimensional Manifolds*, Mathematics Colloquium, State University of New York at Buffalo, 13 November, 1992.

- *Essential Laminations and Dehn Surgery on Knots*, Georgia Topology Conference, University of Georgia, Athens, 5-9 August, 1992.

Other Recent Talks

- *Foliations and Heegard-Floer Homology*, EIU Mathematics and Computer Science Department Colloquium, September 9, 2016. Announcement is included.

- *Persistently Foliar Knots, Branched Coverings, and Heegard-Floer Homology*, EIU Mathematics and Computer Science Department Colloquium, January 30, 2015. Announcement is included.

  A Separation Principal for Geodesics on Cone Manifolds with Pockets, Geometry, Topology, and Dynamics Day, a conference in honor Gregory Galperin's 60th birthday, Eastern Illinois University, April 20, 2013.

- *Teaching Calculus (and Mathematics Generally) So Students Can (and Will) Learn it*, EIU Mathematics and Computer Science Department Colloquium, September 5, 2013.

- *An Introduction to Chu Spaces*, EIU Mathematics and Computer Science Department Colloquium, April 12, 2013.

- *Living in a Hyperbolic World*, EIU Mathematics and Computer Science Department Colloquium, November 9, 2012.

- *The Topology of Social Choice*, EIU Mathematics and Computer Science Department Colloquium, April 6, 2012.

Grants and Fellowships

- College of Sciences Research/Creative Activity/Special Projects Reassignment, Eastern Illinois University: 2015-16, 2012-13, 2010-11.

- Summer Research Awards, Council for Faculty Research, Eastern Illinois University: 1999, 1996.

- Cornell Summer Research Fellowship, 1990. Cornell University.

- Hutchinson Fellowship, Mathematics Department, Cornell University, 1989.

Service

Service to the Illinois Board of Higher Education

- Member, *Higher Education Finance Study Commission*, August-November, 2010.

Service to the Mathematics Profession

- Referee, *Communications in Analysis and Geometry.*

- Referee, *Journal of Differential Geometry.*

- Referee, *Topology.*

- Reviewer, *Mathematical Reviews*, the primary reference on research publications in mathematics. I have reviewed numerous articles, including one featured review.

- Co-organizer of the NSF-supported *Eastern Illinois Integrated Conference in Geometry, Topology, and Dynamics*, Charleston, IL, April 7-9, 2017, and April 15-17, 2016.

- Co-organizer of the Annual EIU Mathematics Department Geometry, Topology, and Dynamics Day conference, 2006-2015.

- Co-organizer, with Ryan Budney (University of Victoria), Kiyoshi Igusa (Brandeis University), Nathalie Wahl (University of Copenhagen), and Ulrich Oertel (Rutgers University), of the workshop *Subtle transversality - a celebration of Allen Hatcher's 65th birthday* (# 09w2138), Banff International Research Station, Banff, Alberta, September 4-6, 2009.

- Author of report on Banff International Research Station workshop 09w2138: *Subtle transversality - a celebration of Allen Hatcher's 65th birthday* (which may be viewed on the BIRS Web site).

- Co-organizer, with Mark Brittenham (University of Nebraska) and Rachel Roberts (Washington University) of the special session on low-dimensional topology, AMS sectional meeting, Urbana, Illinois, March 19-20, 1999

Service to University Professionals of Illinois (UPI) - Current & Recent

- Chair of Trustees and Audit Committee of UPI, Local 4100, AFT. Duties include review of the UPI Local 4100 budgets, audits and policies.

- Assistant Grievance Representative, EIU Chapter of UPI, AY 2015-16.

- Secretary, Mid-eastern Illinois Labor Council, through October 2015.

- Elected delegate to the American Federation of Teachers (AFT) and Illinois Federation of Teachers (IFT) conventions, and elected member of the UPI House of Delegates. In these capacities I have authored and championed numerous resolutions on topics such as environmental education and policy, higher education finance, and social justice. I have actively participated in all conventions since my election, the most recent being the AFT convention of July 11-14, 2014 (Los Angeles), the House of Delegates of March 28-29, 2014, and the IFT convention of October 18-20, 2013 (Rosemont).

- Member, Committee on Political Action and Legislation, EIU Chapter, UPI.

- Member, Mobilization Committee, EIU Chapter, UPI.

Service to University Professionals of Illinois as President of EIU Chapter

- Met with faculty at the University of Wisconsin - Eau Claire as part of AFT organizing effort, April 9, 2009.

- Organized series of meetings to discuss the revision of Departmental Application of Criteria documents.

- Organized and supervised successful negotiation of successors to the 2002-2006 EIU-UPI contracts; organized and supervised contract campaign and support for negotiating team, in collaboration with Local 4100 and IFT support staff; completed language of successor contracts, in collaboration with EIU administrators.

- Vice-president of UPI Local 4100 and representative (with vote) to the UPI Local 4100 Executive Board. Duties include approving the UPI Local 4100 budget (in conjunction with the rest of the Board); creating and implementing policy at the Local level, in accordance with the resolutions of the House of Delegates; and coordinating activities among the eight chapters of UPI.

- Served on Illinois Federation of Teachers (IFT) Universities Council.

- Helped to promote strategic planning at Local level.

- Served as Chair of EIU Chapter Executive Board. The Chapter Executive Board is the governing body of the chapter and oversees all chapter policy and activities, including membership support and the sponsorship and organization of numerous educational and social events. As Chapter President, I serve as a liaison between the EIU Chapter and UPI Local 4100.

- Initiated and largely authored UPI-EIU Chapter Strategic Plan, in collaboration with the EIU-UPI Chapter Executive Board and Chapter membership.

- Authored UPI-EIU Department Rep Handbook, in consultation with Chapter Executive Board and Membership Committee.

- Modernized and consolidated EIU Chapter records.

- Convened and served as chair of chapter membership meetings.

- Convened and served as chair of EIU Chapter House of Delegates, in preparation for Local House of Delegates. I authored or co-authored numerous resolutions, on issues including: advocacy of a more enlightened and progressive foreign policy on the part of the AFT; advocacy of environmental education by the AFT with respect to climate change and other environmental crises; stronger advocacy by the AFt for a single-payer national health plan; changes to the UPI Local 4100 Constitution and Bylaws to enhance democratic process and accountability; information about the labor policies of companies providing products and services to UPI, such as wireless phone service, and support or those with good labor policies; advocacy of faculty inclusion on search committees; support for legislative action to introduce living wage laws, better salaries for faculty members, and

progressive taxation; evaluation of administrators; and opposition to the U.S. military intervention in Iraq.

- Delegate to American Federation of Teachers (AFT) conventions, 2004 (Washington, D.C.), 2006 (Boston, MA), and 2008 (Chicago, IL). I served on the Committee on International Relations, participated in meetings of the Higher Education Division and Peace and Justice Caucus, and spoke to several resolutions on the floor.

- Participated in AFT Higher Education Issues Conference, Seattle, WA, 2004.

- Delegate to the and Illinois Federation of Teachers (IFT) convention, 2005.

- Delegate to the UPI Local 4100 House of Delegates.

- Secretary of the Mid-eastern Illinois Labor Council.

- Met with faculty at Eastern Washington University as part of successful AFT organizing effort, November, 2003. Participated in follow-up organizing conference at Western Washington University (Bellingham), March 2004.

- Work closely with Chapter Grievance Representative on the preparation of grievance cases, including (and especially) those that proceed to arbitration, and the general representation of UPI bargaining unit members and protection of our rights.

- Communicate with members regarding contract questions and UPI policies and activities.

- Completed written language for 2002-2006 EIU-UPI contracts, in collaboration with EIU administrators.

Service to UPI as Vice-president of EIU Chapter

- Chief Negotiator, UPI-EIU 2002-2006 contracts.

- Chief Negotiator, salary "re-openers", 2000 and 2001.

- Negotiating team member, UPI-EIU 1999-2002 contracts, with special emphasis on financial analysis.

- Co-chair of the Task Force on Distance Learning and Intellectual Property Rights. This task force resulted in the very strong intellectual property language in our current contracts.

- Representative (with vote) to UPI Local 4100 Executive Board.

- Presenting Panelist, "Analyzing Institutional Budgets," American Federation of Teachers (AFT) Higher Education Issues Conference, Washington, D.C., 2003.

- Delegate to UPI Local 4100 House of Delegates.

- UPI representative to Committee on University Planning and Budget (CUPB).

Service to the Local Region

- Member of the Board of Directors, Common Ground Food Co-op, Urbana, Illinois, 2015-present.

- Chair, Presenters Committee for the Expanding Your Horizons Conference (to support participation of middle school girls in mathematics and science, sponsored by the Regional Office of Education), February 21, 1998, and Co-Chair for the 1997 conference. I also presented workshops at the Expanding Your Horizons Conferences in Spring '97 and '99 and helped organize the Math Club/KME exhibits in '97 and '98.

- Coordinator and speaker, Mathematics Department Secondary Lectureship Program (providing outreach to local secondary schools), 1995-1997.

- Founding member, Coles County for Peace and Justice.

Service to University Committees and Programs

- Member, Committee to Study Shared Governance at EIU, 2011-12.

- Faculty Fellow, 2006-2009.

- Faculty mentor, 2008-9, 2005-6.

- Faculty mentoring panel, New Faculty Orientation, 2006.

- Undergraduate Research Committee, College of Sciences, Spring 1997.

Service to the EIU Department of Mathematics and Computer Science

- Chair, Mathematics Graduate Committee, 2016-present.

- Chair, Mathematics Faculty Search Committee, AY 2013-2014

- Chair (2012) and member, Mathematics Department Personnel Committee, 2010-2012.

- Chair, Mathematics Position Screening Committee, 2009-10.

- Co-chair, Committee on the Mathematics Curriculum for Secondary School Certification, Spring 2006-2007.

- Chair, Graduate Committee, 2004-5.

- Advisor to EIU Chapter of KME (Mathematics Honor Society), 2003-4.

- Chair of the 44th Annual Conference on the Teaching of Mathematics, EIU, March 6, 2001.

- Chair, Department Research Committee (1999-2001).

- Judge for the oral examination at the Illinois regional mathematics competitions held at EIU in Spring '97, '98, '99 and '01.

- Mathematics Department Library Officer, 1996-2001 (jointly with Gregory Galperin during transition period prior to his assuming the position in 2001). My work included a complete review of the department's periodical and standing order collections in Spring and Fall '99.

- Chair, KME (Mathematics Honor Society) Advisory Group (1999-2000).

- Wrote one of the oral components of the 1997 and 1998 Illinois state high school mathematics competitions. I also provided a discussion of the source material on the Web to help students prepare.

- Advisor to EIU Mathematics Club, 1995-1998.

- Chair of member (at various times) of numerous peer evaluation committees.

- Member (at various times): Mathematics and Computer Science Department Colloquium Committee; Mathematics and Computer Science Department Good of the Order Committee; Mathematics Department Grants and Research Committee; Mathematics Department Assessment Committee; Mathematics Department Curriculum Review Committee; Mathematics Graduate Committee; Focus Group on General Education; Calculus Study Committee; several Mathematics Position Screening Committees.