

Ethan C. Smith

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Education:

- Ph.D., Mathematical Sciences** May 2009
Clemson University, Clemson, SC, USA
Dissertation: *On Elliptic Curves, Modular Forms, and the Distribution of Primes*
Advisor: Dr. Kevin James
- M.S., Mathematical Sciences** May 2005
Clemson University, Clemson, SC, USA
- B.S., Mathematics and Philosophy** May 2003
Grove City College, Grove City, PA, USA

Professional Experience:

- Postdoctoral Fellow** June 2010 – present
Centre de recherches mathématiques
Université de Montréal, Montréal, QC, Canada
- Visiting Scholar** September 2010 – present
Department of Mathematics and Statistics
Concordia University, Montréal, QC, Canada
- Assistant Professor** August 2009 – present (on leave)
Department of Mathematical Sciences
Michigan Technological University, Houghton, MI, USA

Publications:

1. V. Chandee, C. David, D. Koukoulopoulos, and E. Smith. Sharp upper bounds for the number of elliptic curves with a given number of points over finite fields. (in progress).
2. C. David and E. Smith. A Cohen-Lenstra phenomenon for elliptic curves. (in preparation).
3. G. Martin, P. Pollack, and E. Smith. Averages concerning the number of points on elliptic curves. (in preparation).
4. K. James and E. Smith. Average Frobenius distribution for the degree two primes of a number field. (submitted).
5. C. David and E. Smith. Elliptic curves with a given number points over finite fields. (submitted).
6. E. Smith. A variant of the Barban-Davenport-Halberstam Theorem. *International Journal of Number Theory* (to appear).
7. K. James and E. Smith. Average Frobenius distribution for elliptic curves defined over finite Galois extensions of the rationals. *Mathematical Proceedings of the Cambridge Philosophical Society*, 150(3):439-458, 2011.
8. E. Smith. A Barban-Davenport-Halberstam asymptotic for number fields. *Proceedings of the American Mathematical Society*, 138(7):2301-2309, 2010.
9. E. Smith. A generalization of the Barban-Davenport-Halberstam Theorem to number fields. *Journal of Number Theory*, 129(11):2735-2742, 2009.
10. J. Burkhart, N.J. Calkin, S. Gao, J. Hyde-Volpe, K. James, H. Maharaj, S. Manber, J. Ruiz, and E. Smith. Finite field elements of high order arising from modular curves. *Designs, Codes, and Cryptography*, 51(3):301-314, 2009.
11. B. Brown, N.J. Calkin, T.B. Flowers, K. James, E. Smith, and A. Stout. Elliptic curves, modular forms, and sums of Hurwitz class numbers. *Journal of Number Theory*, 128(6):1847-1863, 2008.

Invited Research Lectures:

1. *Elliptic curves with a given group structure modulo p* , Montréal-Toronto Workshop in Number Theory, Fields Institute, Toronto, ON, Canada (10/8/2011).

2. *Elliptic curves with a given number of points modulo p* , Session on “ L -functions and Number Theory,” 2011 Canadian Mathematical Society Summer Meeting, University of Alberta, Edmonton, AB, Canada (6/4/2011).
3. *Elliptic curves with a given number of points modulo p* , Québec-Vermont Number Theory Seminar, McGill University, Montréal, QC, Canada (3/31/2011).
4. *Variation on the theme of Barban, Davenport, and Halberstam*, Algebra and Discrete Math Seminar at Clemson University, Clemson, SC, USA (10/28/2010).
5. *Average Frobenius distribution for elliptic curves defined over number fields*, Québec-Maine Number Theory Conference, Université Laval, Québec City, QC, Canada (10/3/2010).
6. *Average Frobenius distribution for elliptic curves defined over number fields*, AMS Special Session on “ L -Functions and Analytic Number Theory,” Joint Mathematics Meetings, San Francisco, CA, USA (1/15/2010).
7. *A Barban-Davenport-Halberstam asymptotic for number fields*, Number Theory Seminar at University of South Carolina, Columbia, SC, USA (9/25/2008).

Invited Colloquia:

1. *Some questions about primes*, University of Wisconsin at Oshkosh, Oshkosh, WI (2/18/2010).
2. *Elliptic curves and the distribution of primes*, Penn State Erie, The Behrend College, Erie, PA (2/19/2009).
3. *Primes and modular forms*, Hope College, Holland, MI (2/12/2009).
4. *Elliptic curves and the distribution of primes*, Michigan Technological University, Houghton, MI (2/9/2009).

Contributed Lectures:

1. *Average Frobenius distribution for the degree two primes of a number field*. Conference in Number Theory, Carleton University, Ottawa, ON, Canada (6/28/2011).
2. *Average Frobenius distribution for elliptic curves defined over number fields*. Canadian Number Theory Association XI Meeting, Acadia University, Wolfville, NS, Canada (7/16/2010).
3. *Average Frobenius distribution for elliptic curves defined over number fields*. Palmetto Number Theory Series, University of South Carolina, Columbia, SC, USA (12/5/2009).
4. *The Lang-Trotter Conjecture “on average.”* Southeast Regional Meeting on Numbers, University of North Carolina Greensboro, Greensboro, NC, USA (4/18/2009).
5. *The mean square error for the Chebotarëv Theorem in cyclotomic extensions*. Palmetto Number Theory Series, College of Charleston, Charleston, SC, USA (10/11/2008).
6. *Averaging the error in the Chebotarëv Density Theorem over cyclotomic extensions of a number field*. Canadian Number Theory Association X Meeting, University of Waterloo, Waterloo, ON, Canada (7/17/2008).
7. *A mean square error bound for the Chebotarëv Density Theorem for cyclotomic extensions of a number field*. Southeast Regional Meeting on Numbers, Clemson University, Clemson, SC, USA (4/19/2008).
8. *Finite field elements of high order arising from modular curves*. Palmetto Number Theory Series, University of South Carolina, Columbia, SC, USA (12/9/2007).
9. *Elliptic curves, modular forms, and sums of Hurwitz class numbers*. Southeast Regional Meeting on Numbers, Wake Forest University, Winston-Salem, NC, USA (4/21/2007).

Honors and Awards:

- Outstanding Research Award, Junior Level Faculty. Department of Mathematical Sciences, Michigan Technological University (2010).
- University Award for Outstanding Graduate Researcher (\$1,500). Clemson University (2009).
- College Award for Outstanding Graduate Researcher. College of Engineering and Science, Clemson University (2009).
- Outstanding PhD Student Award. Department of Mathematical Sciences, Clemson University (2009).
- Distinguished Achievement Award (\$5,000). Clemson University (2008-2009).
- Clayton V. Aucoin Award for Outstanding Masters Student. Department of Mathematical Sciences, Clemson University (2005).
- NSF Graduate K-12 Fellowship, Clemson University (2003-2004).

Award included: \$28,369 stipend, tuition/fee remission, travel expenses to 3 research conferences.

- Graduated Magna Cum Laude from Grove City College, Grove City, PA (2003).
- John A. Courtney Philosophy Award. Grove City College, Grove City, PA (2003).
- KME mathematics honor society (inducted 2001); served as chapter secretary (2002-2003).
- $\Phi\Sigma\tau$ philosophy honor society (inducted 2002); served as chapter president (2002-2003).

Professional Memberships:

American Mathematical Society
 Mathematical Association of America

Teaching:

Concordia University , Visiting Scholar.	September 2009 – present
<u>COURSES TAUGHT</u>	<u>SEMESTER</u>
MATH 208 (fundamental mathematics I, 58 students)	Fall 2011
MATH 208 (fundamental mathematics I, 70 students)	Winter 2011
MATH 208 (fundamental mathematics I, 67 students)	Fall 2010
Michigan Technological University , Assistant Professor.	August 2009 – present
<u>COURSES TAUGHT</u>	<u>SEMESTER</u>
MA 4908 (number theory, 16 students)	Spring 2010
MA 1160 (calculus I, 2 sections, 43+39 students)	Fall 2009
Clemson University , Graduate Teacher of Record.	August 2004 – May 2009
<u>COURSES TAUGHT</u>	<u>SEMESTER</u>
MTHSC 108 (calculus II, 37 students)	Fall 2008
MTHSC 108 (calculus II, 16 students)	Summer 2008
MTHSC 108 (calculus II, 45 students)	Spring 2008
MTHSC 106 (calculus I, 44 students)	Fall 2007
MTHSC 207 (business calculus II, 19 students)	Spring 2007
MTHSC 108 (calculus II, 12 students)	Fall 2006
MTHSC 106 (calculus I, 15 students)	Spring 2006
MTHSC 106 (calculus I, 27 students)	Fall 2005
MTHSC 102 (business calculus I)	Spring 2005
MTHSC 102 (business calculus I, 2 sections)	Fall 2004
Clemson University , Graduate Teaching Assistant.	June 2004 – August 2004
<u>RECITATION LAB</u>	<u>SEMESTER</u>
MTHSC 103L (college algebra)	Summer 2004

Undergraduate Summer Research Co-mentored:

- 2011: Nicolas Bouchard (with Matilde Lalín).
- 2009: Allen Gehret, Alexa Kottmeyer, Nick Salter (with Kevin James and Neil Calkin).
- 2008: Lauren Huckaba, Jason Joyner, Joshua Schwartz (with Kevin James and Neil Calkin).
- 2007: Jessica Burkhart, Justine (Hyde-Volpe) Chasmar, Shelly Manber, Justine Ruiz (with Kevin James and Neil Calkin).

Service:

- Member of the Computing Committee. Department of Mathematical Sciences, Michigan Technological University, 2009 – 2010.
- Co-organized (with Melissa Keranen) an informal cryptography reading seminar, Fall 2009 – Spring 2010.
- Referee for *The Rocky Mountain Journal of Mathematics*.
- Reviewer for *Mathematical Reviews*.