Hilary J. Smallwood

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CONTACT INFORMATION

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EDUCATION

Colorado State University, Fort Collins, Colorado USA

Ph.D., Mathematics (expected graduation date: Summer 2014)

- Areas of Study: Number Theory, Arithmetic Algebraic Geometry
- Thesis Topic: Abelian Surfaces over Finite Fields with Real Multiplication
- Advisor: Professor Jeffrey Achter

M.S., Mathematics, December 2011

- Title: Endomorphisms of Abelian Varieties over Finite Fields and Characteristic Polynomials of Frobenius
- Advisor: Professor Jeffrey Achter

Fort Lewis College, Durango, Colorado USA

B.A., Mathematics, May 2009

- Summa Cum Laude
- John F. Reed Honors Program

TEACHING EXPERIENCE

Graduate Teaching Assistant, *CSU*　　　　　　　　**August 2009 to present**

- **Primary Instructor (coordinated courses)**
    - Prepared and presented lectures, led exam review sessions, and graded for all courses. Some courses also included assigning homework, writing quizzes, or writing and editing common exams.
    - **Courses Taught:**
        - Calculus for Biological Scientists I: Fall 2009, Spring 2010
        - Calculus for Physical Scientists I: Fall 2010, Fall 2011, Fall 2012
        - Calculus for Physical Scientists II: Spring 2011, Spring 2012 (Labs), Fall 2013
        - Calculus in Management Sciences: Spring 2013 (Large lecture, 200+ students)

- **Primary Instructor (non-coordinated courses)**
    - Chose course topics; constructed appropriate syllabus; prepared and presented lecture; scheduled, wrote and graded: exams, quizzes and homework assignments.
    - **Courses Taught:**
        - Calculus for Physical Sciences I: Summer 2010, Summer 2011
        - Calculus for Physical Sciences II: Summer 2013
        - Calculus for Physical Sciences III: Summer 2012

- **Course Development:**
    - *Calculus for Biological Scientists I, Summer 2010.* Assisted in editing online (WeB-WorK) homework sets as part of an update in course structure.

RELATED EXPERIENCE	*GTA Mentor (CSU)*	**Fall 2012, 2013**

GTA Mentor (CSU)   **Fall 2012, 2013**
- Chosen to mentor first year graduate teaching assistants
- Helped organize and run GTA training workshop, performed in-class evaluations and advised GTAs on areas of improvement

Private Tutor (CSU)   **2009 - Present**
- Tutored individuals in Business, Biological, and Physical Calculus courses

College Reading and Learning Association Peer Tutor (Fort Lewis College)   **2008-2009**
- Certification completed 2008
- Tutored drop-in mathematics students in precalculus and calculus courses

RESEARCH
INTERESTS

Arithmetic Algebraic Geometry: enumeration of abelian varieties

Number Theory: finite fields, number fields

Group Theory: matrix groups

TALKS AND
POSTERS

"Abelian Surfaces with Real Multiplication." *Joint Mathematics Meetings AMS Session on Number Theory II*, Baltimore, Maryland, January 2014

"Counting Abelian Surfaces with Real Multiplication by $\mathbb{Q}(\sqrt{d})$." *Math Fest Graduate Student Poster Session*, Hartford, Connecticut, August 2013

"Counting Abelian Surfaces with Real Multiplication by $\mathbb{Q}(\sqrt{d})$." *AMS Special Session on Arithmetic Statistics and Big Monodromy*, Boulder, Colorado (University of Colorado Boulder), April 2013

"Bounds for the Number of Isogeny Classes of Abelian Surfaces over $\mathbb{F}_q$." *CSU Number Theory Lab*, Fort Collins, Colorado (CSU), April 2012

"Elliptic Curves, Abelian Varieties and Endomorphism Rings." *Fort Lewis College Math Colloquium (Invited Speaker)*, Durango, Colorado, March 2012

"Endomorphisms of Abelian Varieties over Finite Fields and Characteristic Polynomials of Frobenius." *Greenslopes Graduate Student Seminar*, Fort Collins, Colorado (CSU), October 2011

"Irreducible Divisor Graphs." *Joint Mathematics Meetings Undergraduate Research Poster Session*, Washington DC, January 2009

CONFERENCES
AND
PROGRAMS
ATTENDED

Western Algebraic Geometry Symposium, (CSU) October 2011

VIGRE Summer School 2011: Arithmetic Dynamics (University of Georgia), May 2011

Arizona Winter School: Stark-Heegner points (University of Arizona), March 2011

MAA Spring Meeting, Rocky Mountain Section (CSU), April 2010

Intensive Mathematics: a Mentoring, Education, and Research Summer Experience (IMMERSE), (University of Nebraska-Lincoln), Summer 2009

Wabash Summer Institute in Mathematics (WSIM) (Wabash College), Crawfordsville, IN, Summer 2008

AWARDS	*MAA Outstanding Seniors Award*, Fort Lewis College, 2009
	Math Award Scholarship, Fort Lewis College, 2006, 2007, 2008
	Women in Mathematics Award, WMA, 2007
	FLC Presidential Scholarship, Fort Lewis College, 2005

SERVICE

Seminar Co-organizer **Fall 2013**
- Co-organized the Greenslopes Graduate Student Seminar, a research seminar for graduate students
- Responsible for recruiting speakers, obtaining abstracts, maintaining seminar webpage, and running the seminar each week

Math Circles Volunteer **Summer 2013**
- A week-long camp for middle school students interested in mathematics
- Students explore fascinating and challenging math concepts in a hands-on format
- Assisted as group leader, leading students between sessions, monitoring students and encouraging group discussion

Regional Math Counts Competition Volunteer **February 2013**
- Assisted with grading the team and individual written exams

Math Day Volunteer **November 2009-2012**
- High school math competition open to schools in Colorado, Nebraska and Wyoming
- Students compete on individual written exams and team competitions for prizes offered from local and national donors
- Read and scored for the college bowl style team competition

MAA Rocky Mountain Sectional Meeting Book Sales Volunteer **April 2010**

RELEVANT COURSEWORK

All at Colorado State University, 2009-present
- Abstract Algebra (4 semesters, including groups and rings, representation and character theory, and commutative algebra)
- Real and Complex Analysis
- Algebraic Geometry (2 semesters)
- Topology
- Combinatorics (2 semesters)
- Measure Theory
- Special Topics: Number Theory (3 semesters, including elliptic curves, and arithmetic geometry); Computational Group Theory (computing in the computer system GAP); Numerical Algebraic Geometry

COMPUTING SKILLS

LaTeX, Maple, Sage, GAP, Windows, WeBWorK

SOCIETY MEMBERSHIPS
- AMS (2009-present)
- SIAM CSU Student Chapter (2012-present)
- Kappa Mu Epsilon - Gamma Chapter, Fort Lewis College (2009-present)
- Sigma-Xi (2008-2009)