

# Curriculum Vitae

Jay Daigle

Office Address: Occidental College  
1600 Campus Road  
Los Angeles, CA 90041

Phone: (504) 388-0654  
Email Address: gdaigle@oxy.edu  
Homepage: <http://jaydaigle.net>

## Education

- 2009 – 2014 Ph.D in Mathematics at California Institute of Technology.  
Advisor: Matthias Flach.  
Thesis: “On the local Tamagawa number conjecture for Tate motives”.
- 2008 – 2009 Master of Advanced Studies in Mathematics, Cambridge University, with Merit.
- 2004 – 2008 B.A. in Mathematics, Pomona College, cum laude.  
Advisor: Stephan Garcia.

## Employment

- 2014 – Non Tenure Track Assistant Professor at Occidental College.

## Academic Honors and Grants

- 2009 – 2014 NSF Graduate Research Fellowship.  
2007 Inducted into Sigma Xi Honor Society.

## Research Interests

Number Theory; Arithmetic geometry and algebraic number theory;  $p$ -adic Hodge Theory,  $(\phi, \Gamma)$ -modules,  $L$ -functions, and the Tamagawa number conjecture. Supercharacters and exponential sums.

My research focuses on using the techniques of  $p$ -adic Hodge theory and  $(\phi, \Gamma)$ -modules to study a number of arithmetic principles. In particular, there is a wonderful conjecture of Bloch and Kato which generalizes both the analytic Class Number Formula and the Birch and Swinnerton-Dyer conjecture; I am currently working to strengthen the evidence for this conjecture in the case of Tate motives over number fields.

I have recently become interested in supercharacters and their applications to exponential sums in number theory.

## Papers

- 2016 Jay Daigle and Matthias Flach. On the local Tamagawa number conjecture for Tate motives over tamely ramified fields. *Algebra & Number Theory*, 2016. to appear
- 2014 Jay Daigle. *On the local Tamagawa number conjecture for Tate motives*. PhD thesis, California Institute of Technology, <http://resolver.caltech.edu/CaltechTHESIS:05292014-153502602>, May 2014 <http://resolver.caltech.edu/CaltechTHESIS:05292014-153502602>
- 2010 S. T. Chapman, Jay Daigle, Rolf Hoyer, and Nathan Kaplan. Delta sets of numerical monoids using nonminimal sets of generators. *Comm. Algebra*, 38(7):2622–2634, 2010
- 2009 Adam Booher, Jay Daigle, Jim Hoste, and Wenjing Zheng. Sampling Lissajous and Fourier knots. *Experiment. Math.*, 18(4):481–497, 2009 arXiv:0707.4210

## Teaching Experience

### Courses at Occidental College

- Junior Colloquium, Spring 2017
- Linear Algebra, Spring 2017
- Experienced Calculus I, Spring 2016, 2017 and Fall 2014, 2015, 2016
- Number Theory, Fall 2016
- Calculus I, spring 2016
- Advanced Calculus II, Fall 2015
- Calculus II, Spring 2015

### Courses at the California Institute of Technology

- Taught Sequences and Series, Winter 2014
- Head TA for Calculus of Several Variables, Practical Track, Spring 2011 and 2014
- TA for “Freshman Mathematics”, Fall 2013
- Head TA for Linear Algebra, Analytical Track, Winter 2011
- TA for Calculus of One Variable, Fall 2010

### Other Teaching Experience

- Ballroom instructor for Caltech Ballroom Dance Club, 2010 – 2015
- Math Tutoring through Caltech Dean’s Office, Fall 2013
- Math and Language Tutor for C2 Education Tutoring Service, Summer 2008

## Pedagogy and Professional Development

- 2015 Participated in workshop, Designing Student Polling Questions.  
 2014 Participated in Arizona Winter School on Arithmetic Statistics.  
 2013 Enrolled in Caltech class E110: Principles of University Teaching in STEM.  
 2013 Participated in Arizona Winter School on Modular Forms and Modular Curves.  
 2011 Gave talks for graduate seminar on étale cohomology.  
 2007 President of Pomona College Math Club.

## Presentations and Talks

- 2014 “An Introduction to Special Values of  $L$ -functions”  
 Presentation to the Caltech Math Club
- 2014 “The Tamagawa number conjecture on motives, and  $(\phi, \Gamma)$ -modules”  
 at Claremont Colleges Algebra/Number Theory/Combinatorics Seminar.
- 2008 Meritorious Poster Award at Undergraduate Poster Session at annual AMS-MAA  
 joint meetings in San Diego.
- 2007 20-minute talk at Young Mathematicians’ Conference at The Ohio State University.
- 2007 Meritorious Poster Award at Undergraduate Poster Session at the Annual Meeting  
 of the Southern California-Nevada section of the MAA.
- 2007 Undergraduate Poster Session at the 2007 annual AMS-MAA joint meetings in New Orleans.