# Christopher LeBailly

## Education

June 2013 **M.A., Mathematics**, *University of California Santa Cruz*, Santa Cruz, CA.
Completed masters thesis studying coupled clocks and coupled chaotic oscillators.

May 2008 **B.A., Mathematics and Music**, *Grinnell College*, Grinnell, IA.
Honors received for both majors. Cumulative GPA: 3.65 (Mathematics: 3.79; Music: 3.75).

## Experience

### Teaching

September 2010 – June 2013 **Teaching Assistant**, *University of California Santa Cruz*, Santa Cruz, CA.
- TA for Precalculus, Integral Calculus and Multivariable Calculus courses.
- Conducted seven hours of sections per week. Helped students by going over homework problems and giving group work projects I prepared. Also held three hours of office hours per week.
- Evaluated student performance by grading quizzes and exams.

July 2012 – August 2012 **Summer Instructor**, *University of California Santa Cruz*, Santa Cruz, CA.
- Taught five week summer course on Integral Calculus.
- Lectured three times a week, wrote and graded quizzes and exams, and held office hours.
- Supervised a teaching assistant, who conducted sections and helped grade exams.

August 2008 – June 2010 **Math Study Center Aide**, *Evanston Township High School*, Evanston, IL.
- The Math Study Center offers drop-in tutoring for students with varying math abilities.
- Worked with an average of 50 students per day in courses from Algebra 1 to Linear Algebra.
- Conducted ACT review sessions for minority students close to meeting standards in math.
- Substitute taught for Calculus (single and multiple variables) and Linear Algebra.

August 2008 – June 2010 **Math Team Coach**, *Evanston Township High School*, Evanston, IL.
- Wrote practice problems for the written and oral events. Oral events focus on solving problems and presenting coherent solutions to judges on advanced topics.
- Graded homework for the Chicago chapter of the American Regions Math League.

August 2009 – June 2010 **Teaching Assistant**, *Project Excite!*, Evanston, IL.
- A collaborative project between Northwestern University and Evanston Township High School which identifies talented minority students in third grade and nurtures their talents in math and science.
- Helped facilitate sessions with the third graders and high school student assistants.

2008–2010 **Private Math Tutor**, Evanston, IL.
Tutored students in AB Calculus, Multivariable Calculus, and Linear Algebra.

August 2005 – May 2008 **Math Lab Tutor**, *Grinnell College*, Grinnell, IA.
Offered drop-in tutoring in Calculus and Linear Algebra.

January 2005 **Math Study Center Tutor**, *Evanston Township High School*, Evanston, IL.
Filled in for the director the week before final exams.

### Research

January 2013 - June 2013 **Masters Thesis Research**, *University of California, Santa Cruz*, Santa Cruz, CA.
- Wrote masters thesis on different modes of synchronization of periodic and chaotic oscillators.
- Wrote programs in Python to model these different dynamical systems.

224-628-0635 • chris.lebailly@gmail.com • lebailly.github.io

June 2006 – August 2006 **Student Research**, *Grinnell College*, Grinnell, IA.
Wrote paper on conditions need to perform surgeries (removing and adding vectors) on tight frames.

2003–2004 **Synchronization of Chaotic Oscillators**, *Evanston Township High School*, Evanston, IL.
- Independent research using a computer simulation to study two weakly coupled double pendulums.
- Received third place and scholarship at Chicago Junior Science and Humanities Symposium.

### Professional Affiliations

2010-2013 **American Mathematical Society**.

2008–2010 **Metropolitan Mathematics Club of Chicago**, Chicago, IL.

### Professional Development

January 2014 – Present **Massively Open Online Courses**, *Coursera, EdX*.
Covered Machine Learning, Statistics, R programing, and Data Analytics. Participated in the *John Hopkins* Data Science Specialization. See `lebailly.github.io/MOOCs.html` for details.

Fall 2013 **Bioinformatics Models & Algorithms**, *University of California Santa Cruz*, Santa Cruz, CA.
An introductory graduate level course in Bioinformatics, taken through the UCSC Extension Program.

Summer 2012 **Mathematical General Relativity**, *Mathematical Sciences Research Institute*, Berkley, CA.
Two week workshop on mathematical general relativity, which is the study of mathematical problems related to Einstein's theory of gravitation.

January 2010 **MMC Conference of Workshops**, Chicago, IL.
Attended workshops in using games to present mathematical ideas to elementary school children, using complex instruction to provide academic access and success for all students in the classroom, and using Cabri to generate a multitude of conjectures about various properties of triangles.

January 2009 **MMC Conference of Workshops**, Chicago, IL.
Attended workshops in using paper folding to convey geometric concepts, how to make proofs meaningful to geometry students, and the derivation of the hyperbolic trig functions.

### Volunteer

March 2014 – June 2014 **Cantu Center Volunter**, *UC Santa Cruz*, Santa Cruz, CA.
Helped with office work and also helped draft a graduate job description for the follow school year.

September 2013 – April 2014 **Volunteer Cook & Server**, *Circle Church*, Santa Cruz, CA.
Helped prepare and serve meals for homeless.

December 2009 & May 2010 **Habitat for Humanity**, *Evanston Township High School*, Chicago, IL.
Chaperoned a group of students for the day to work on a project house.

January 2007 **Alternative Break**, *Grinnell College*, Chicago, IL.
Spent a week with other Grinnell students working with various organizations regarding homelessness.

September 2002 – June 2004 **Volunteer Tutor**, *Evanston Township High School*, Evanston, IL.
- Tutored an Algebra 1 student in danger of failing (she earned a B) in 2002-2003 school year.
- Tutored two students in Trigonometry and one in Calculus in 2003-2004 school year.

## Awards

April 2007 **Hill Distinguished Award in Music**, *Grinnell College*, Grinnell, IA.

Fall 2007 **Iowa Collegiate Mathematics Competition**, 5$^{th}$ Place.

Fall 2006 **Iowa Collegiate Mathematics Competition**, 3$^{rd}$ Place.

November 2006 **Mathematical Contest in Modeling**, Honorable Mention.

March 2004 **Junior Science and Humanities Symposium**, 3$^{rd}$ Place.
Received award and scholarship for research on "Synchronization of Chaotic Oscillators."

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November 2003 **High School Mathematical Contest in Modeling**, National Outstanding.
Contest paper published in COMAP's *Consortium 86*, pages 36-41.

November 2002 **High School Mathematical Contest in Modeling**, Regional Outstanding.

## Computer skills

### Programing

Fluent: Python, R

Familiarity: MatLab, Octave, SQL

Dormant: C++, Mathematica

### Other

Typesetting: LaTeX

Operating Systems: Linux, Mac OS X, Windows

## Other Interests

I also enjoy swimming, playing piano, volleyball and Ultimate Frisbee.

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