

Experience

Chair of Mathematics, Whittier College, Jan. 2015 - June 2018.

Associate Professor, Whittier College, 2013 - present.

Visiting Researcher, University of Georgia, Athens, Spring 2014.

Visiting Professor, Dartmouth College, Fall 2013.

Assistant Professor, Whittier College, 2007 - 2013.

Visiting Assistant Professor & Projects Director, Summer Mathematics Institute, Cornell University. Summers 2007, 2008, 2012.

Graduate Instructor, University of South Carolina, 2004-2007.

Teacher, Interim Mathematics Department Head, Palmer Trinity School, Miami, FL, 1997-2000.

Six other teaching positions prior to graduate school.

Education

PhD in Mathematics, University of South Carolina. Advisor: Michael Filaseta. Dissertation: *Applications of Covering Systems of Integers and Goldbach's Conjecture with Monic Polynomials*, 2007.

MA in Mathematics, Wake Forest University, 2002.

EdM in Mathematics Teaching and Curriculum, Harvard Graduate School of Education, 1997.

AB in Biology, Harvard University, 1994.

High School Diploma, Colegio San Ignacio de Loyola, San Juan, Puerto Rico, 1990.

Book

Mathematical Themes in a First-Year Seminar (co-edited with Jennifer Schaefer, Jennifer Bowen, and Pamela Pierce), MAA Notes Series, Mathematical Association of America, Washington DC, to appear.

Articles

8. Math in Pop Culture: A First-Year Writing Seminar on Mathematics, *Mathematical Themes in a First-Year Seminar*, MAA Notes Series, Mathematical Association of America, Washington DC, to appear.
7. Mathematics in literature and cinema: an interdisciplinary course (with H. Rafael Chabrán), *PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies* **26** (2016) no. 4, 334–344.
6. Harmonious pairs (with Florian Luca, Paul Pollack and Carl Pomerance), *International Journal of Number Theory* **11** (2015) no. 5, 1633–1651.
5. Polygonal, Sierpiński, and Riesel numbers (with Dan Baczkowski, Justin Eitner, Carrie Finch, and Braeden Suminski), *Journal of Integer Sequences* **15** (2015) no. 8, 12 pp.
4. Book Review: Mathematics in Popular Culture: Essays on Appearances in Film, Fiction, Games, Television and Other Media. Edited by Jessica K. Sklar and Elizabeth S. Sklar, *American Mathematical Monthly* **121** (2014) no. 3, 274–278.
3. Composites that remain composite after changing a digit, (with Michael Filaseta, Charles Nicol and John Selfridge), *Journal of Combinatorics and Number Theory* **2** (2011), 25–36.
2. On an asymptotic formula for Goldbach's conjecture with monic polynomials in $\mathbb{Z}[x]$, *American Mathematical Monthly* **117** (2010), 365–369.

1. On powers associated with Sierpiński numbers, Riesel numbers and Polignac’s conjecture, (with Michael Filaseta and Carrie Finch), *Journal of Number Theory* **128** (2008), 1916–1940.

Article in Progress

1. Composites in different bases that remain composite after changing digits, (with Kelly Dougan, Mahadi Osman, and Jason Tata).

Research with Students

18. Celeste Franco, *Statistical Analysis of Goal Scoring and its Development in Soccer Analytics*, Senior Seminar Research, 2019-20.
17. Philip de Castro, *On the behavior of integer partitions and carry sequences*, Whittier Fellowship for Underrepresented Students in the Sciences Research, 2016-18.
16. Philip de Castro, *Eulerian numbers*, Ondrasik & Groce Research Fellowship, 2015-16.
15. Molly Cunningham (co-mentored by Bill Kronholm), *Cracking a homophonic substitution cipher*, Howard Hughes Medical Institute - SMaRT Undergraduate Fellowship Research, 2012-2014.
14. Acadia Larsen (co-mentored by Brandt Kronholm), *A Survey of Divisibility Properties of the Partition Function and Related Functions*, Mellon Mays Undergraduate Fellowship Research, 2012-2014.
 - Published: *The Mellon Mays Undergraduate Fellowship Journal* **20** (2014), 67–71.
13. Ace White, *Finding Connecting Lines on n Points in the Real Affine Plane*, Senior Seminar Research, 2012-2013.
12. Lane Bloome, Justin Ferguson, and Marcella Noorman, *Appending digits to Sierpiński and Riesel numbers*, Summer Mathematics Institute, Cornell University, 2012.
11. Kelly Dougan, Mahadi Osman, and Jason Tata, *Composites in different bases that remain composite after changing digits*, Summer Mathematics Institute, Cornell University, 2012.
10. Kelsey Houston-Edwards, Erin Linebarger, and Michael Lugo, *Minimality questions inspired by Erdős’ minimum modulus problem*, Summer Mathematics Institute, Cornell University, 2012.
9. Laura Lyman, Tim Morris, and Bridget Toomey, *Incongruent restricted disjoint covering systems*, Summer Mathematics Institute, Cornell University, 2012.
8. Stephanie Angus, *Are Mathematicians Born or Made?: the Debate as Seen Through Literature*, W. M. Keck Foundation Undergraduate Fellowship Research, 2011-2012.
7. Nicole Yamasaki, *Arcadia: A Means to Embed Math in the Soul*, 2011-2012.
 - Published: *Whittier College $\Sigma T \Delta$ Literary Review* **25** (2012), 73–77.
 - 2nd place essay, 2012 Whittier College First-year Writing Competition.
6. Angélica González, *Application of coverings to Fibonacci and Fibonacci-like numbers*, Mellon Mays Undergraduate Fellowship Research, 2010-2012.
5. Zhenyu Chen, *Application of random tiling to generalized Fibonacci identities*, Senior Seminar Research, 2010-2011.
4. Tobit Raff, *On Oregon’s placard code*, Fall 2010.
 - Results credited in: P. Hruba, Can Oregon’s Placard Code Be Broken?, *ESPN.com Page Two*, January 7, 2011.
3. Tobit Raff, *Computations with Erdős’ minimum modulus problem*, Summer 2009.
2. Kelly Bickel, Michael Firrisa, Juan Pablo Ortiz, and Kristen Pueschel, *Constructions of Coverings of the Integers: Exploring an Erdős Problem*, Summer Mathematics Institute, Cornell University, 2008.
1. Stéfano Campagna, Ashley Larsen, Russell Latterman, Andrea Stephan, *On the properties and structure of 4×4 Sudoku tables, with 9×9 extensions*, Summer Mathematics Institute, Cornell University, 2008.

Senior Papers Supervised (not listed above)

9. Cesar Quiñonez, “On Richardson’s Recursive Sequence and the Fibonacci Sequence”, 2017.
8. Sarah McAdams, “The Mathematics of the Advanced Encryption Standard”, 2016.
7. Peter Tran, “Keeler’s Theorem”, 2015.
6. Tobit Raff, “Lenstra’s Elliptic Curve Factoring Algorithm”, 2011.
5. Ellie Maas, “Attacks on the RSA Cryptosystem”, 2010.
4. Nichole deWilde, “3-D Rotations Using Quaternions”, 2010.
3. Nicholas Daum, “The ElGamal Cryptosystem”, 2008.
2. Fabiola Graciano, “The S-I-R Model for Infections Diseases”, 2008.
1. Jun Nishiguchi, “Applications of Quaternions to Computer Graphics”, 2008.

Invited Talks

15. Infographics/mapping for mathematics, Whittier Digital Liberal Arts Hi-Tech Happy Hour, Dec. 2016.
14. On Erdős covering systems (4 times): Univ. of Georgia, April 2014, College of Charleston, April 2014, Univ. of Georgia Math Club, March 2014, Dartmouth College, November 2013.
13. Numb3rs in W4r & Espion4ge: The Mathematics and Politics of Military Cryptography, Information Sciences Institute, University of Southern California, June 2013.
12. Mathematics in literature and cinema (2 times): Cal Poly Pomona, March 2013, Washington & Lee Univ. Jan 2012.
11. Undergraduate research on coverings, AMS Special Session on Coverings of the Integers, JMM 2013.
10. Mathematics serving students in other disciplines (Panel), AMS Committee on Education, JMM 2013.
9. Covering systems: number theory in the spirit of Paul Erdős (3 times): Cal Poly Pomona, January 2012, Fullerton College, December 2010, Cornell University Summer Math Institute, July 2009.
8. Composite numbers that remain composite after any substitution of a digit, Washington & Lee University, August 2011.
7. Applications of covering systems of integers, Pacific Univ. (Oregon), March 2007.
6. On mathematical discovery: making research accessible to *young* mathematics students, Math Education Colloquium, Cal State Fullerton, February 2007.
5. Little things that add up to a lot, Effective Instruction Colloquium, Kansas State Univ., Nov. 2006.
4. Teaching and Learning: The Balancing Act, Invited Panelist, Workshop for Graduate Teaching and Instructional Assistants, University of South Carolina, August 2006.
3. On some of my favorite numbers, Meredith College, North Carolina Governor’s School East, July 2006.
2. On coverings of the integers and numbers of the form: $k^r 2^n + 1$ or $k^r - 2^n$, South Carolina, Oct. 2005.
1. Sierpiński’s covering and other results based on coverings of the integers, Meredith College, North Carolina Governor’s School East, July 2005.

Contributed Talks

16. Math in Pop Culture: A first-year writing seminar on mathematics, Joint Meetings 2019.
15. Using infographics to visualize number theory, Joint Meetings 2018.
14. Mathematics in literature and cinema II, Joint Meetings 2017.
13. Numb3rs in W4r & Espion4ge: The Mathematics and Politics of Military Cryptography, JMM 2015.
12. Picks for Kicks: How FIFA’s Structure Complicates Ranking National Soccer Teams, Carolina Sports Analytics Meeting 2014.

11. Composites in different bases that remain composite after changing digits, INTEGERS 2013.
10. A freshman writing seminar on mathematics, Joint Meetings 2013.
9. Recent results using coverings, West Coast Number Theory 2012.
8. Mathematics in literature and cinema, Joint Meetings 2012.
7. An asymptotic formula for Goldbach's conjecture with monic polynomials, (3): Joint Meetings 2010, West Coast Number Theory 2009, INTEGERS 2009.
6. On composite numbers that remain composite after any insertion of a digit, (3): Number Theory Fest 2007, Joint Meetings 2007, West Coast Number Theory 2006.
5. On Goldbach's conjecture for monic polynomials in $\mathbb{Z}[x]$, Palmetto Number Theory Series I, 2006.
4. On some special composite numbers, South-East Regional Meeting on Numbers 2006.
3. On 4th and 6th power Riesel numbers, West Coast Number Theory 2005.
2. On two conjectures of Chen, INTEGERS 2005.
1. On a conjecture concerning Sierpiński numbers, South-East Regional Meeting on Numbers 2005.

Courses Taught

COURSE #	COURSE TITLE	COURSE #	COURSE TITLE
Math 491-B	Senior Seminar II	Math 142	Calculus II & Analytic Geo.
Math 491-A	Senior Seminar I	Math 141	Calculus I & Analytic Geo.
Math 480-B	Modern Algebra II	Math 139-A	Integrated Calculus/Precalculus
Math 480-A	Modern Algebra I	Math 085	Precalculus
Math 395	Indep. Study - Cryptography	Math 081	Math for Management Sciences
Math 380	Linear Algebra	Math 079	Quantitative Reasoning
Math 320	Advanced Geometry	Math 076	College Algebra
Math 305	Number Theory	INTD 237	Math. Methods in Studio Art
Math 280	Abstract Thinking	INTD 236	Soccermetrics
Math 242	Intro to Linear Algebra	INTD 234	Numb3rs in W4r & Espion4ge
Math 241	Calculus III & Analytic Geo.	INTD 231	Numb3rs in Lett3rs & Films
Math 220	Discrete Mathematics	INTD 100	Freshman Writing Seminar

Grants and Fellowships

7. Whittier College Faculty Development Grants:
 - (d) \$5600 for continued education in Data Science, Summer/Fall 2020.
 - (c) \$2000 to purchase a surge protector and renew MAGMA software license, Summer/Fall 2014.
 - (b) \$2500 to purchase a research workstation and a MAGMA software license, Summer/Fall 2011.
 - (a) \$2500 (with Jeff Miller) to support summer research with students, Summer 2009.
6. Whittier College Digital Liberal Arts Grants:
 - (c) Using infographics to visualize number theory. Spring 2017.
 - (b) Using infographics to visualize proofs. Fall 2016.
 - (a) Using webcomics in mathematical storytelling (with H. Rafael Chabrán). Spring 2015.
5. Travel Grants (from various funding sources):
 - (g) Elementary, analytic, and algorithmic number theory: Research inspired by the mathematics of Carl Pomerance (70th birthday), UGA, June 2015.
 - (f) SCHOLAR - a Scientific Celebration Highlighting Open Lines of Arithmetic Research (Ram Murty's 60th birthday), Centre de Recherches Mathematiques, Montréal, October 2013.

- (e) Maine/Québec Number Theory Conference 2013.
 - (d) Mathematical Congress of the Americas 2013.
 - (c) West Coast Number Theory Conference 2012, 2009, 2008.
 - (b) INTEGERS Conference 2009, 2005.
 - (a) MAA SoCal Nevada Section NExT Spring 2010, Spring 2009.
4. Whittier College-Mellon Foundation Course Development Grant for INTD 231: Numb3rs in Lett3rs and Films, \$3000 (with H. Rafael Chabrán) Center for Collaboration with the Arts, Fall 2010.
 3. NSF/South East Alliance for Graduate Education & the Professoriate Fellowship: 2005-2007.
 2. Hispanic Scholarship Fund Graduate Scholarship: 2004-2006.
 1. US Dept. of Educ./Graduate Assistance in Areas of National Need Fellowship: 2002-2004.

Workshops

11. Number Theory Informed by Computation, Undergraduate Faculty Program, IAS/Park City Math Institute 2020. (Cancelled due to Covid – tentatively rescheduled for 2021.)
10. Mathematics Equity in Southern California (MESCal) Third Annual Unconference on Equity and Inclusivity in Mathematics, Cal Poly Pomona, February 22, 2020.
9. Introduction to Analytics for Soccer-Los Angeles, Statsbomb, Banc of California Stadium, July 6, 2019.
8. Mathematics Equity in Southern California (MESCal) First Annual Unconference on Equity and Inclusivity in Mathematics, Harvey Mudd College, February 17, 2018.
7. Serving Undocumented Students, a Webex Webinar sponsored by the Whittier College Cultural Center and Ortiz Programs, May 16, 2012.
6. What Works in STEM Education?, Regional Network Conference and Meeting, So Cal Project Kaleidescope, Pomona College. January 21, 2012.
5. The Integration of Mathematics into Lower Division Science Courses at Hispanic Serving Institutions, Quality Education for Minorities (QEM) Network, Baltimore, MD, December 2010.
4. Section NExT, MAA So-Cal Nevada Section, Spring 2010.
3. Arithmetic of L -functions, Undergraduate Faculty Program, IAS/Park City Math Institute 2009.
2. Section NExT, MAA So-Cal Nevada Section, Spring 2009.
1. NSF Grant-Writing Conference, Cal Poly Pomona, Nov 2008.

Service to Mathematics Community

10. Joint Meetings 2019, Co-Organizer, MAA Session on Mathematical Themes in a First-Year Seminar.
9. Math Fest 2018, Co-Organizer, Session on Mathematical Themes in a First-Year Seminar.
8. Joint Meetings 2018, Co-Organizer, MAA Session on Innovative Teaching Practices in Number Theory.
7. External evaluator: Gustavus Adolphus College, MacArthur Foundation, Pacific Lutheran University, Lake Forest College, Oberlin College, SUNY: The College at Old Westbury, Shippensburg University, University of South Carolina.
6. Referee: *International Journal of Number Theory*, *INTEGERS: The Electronic Journal of Combinatorial Number Theory*, *The American Mathematical Monthly*, *Journal of Integer Sequences*.
5. Pacific Coast Undergraduate Mathematics Conference, Session Chair, 2009, 2010, 2012.
4. Joint Mathematics Meetings, Session Chair, AMS Session on Number Theory IV, 2010.
3. MAA So-Cal Nevada Spring Sectional, Poster Judge, April 2009.
2. Palmetto Number Theory Series I (PaNTS), Volunteer, 2006.
1. South-East Regional Meeting on Numbers (SERMoN), Volunteer, 2005.

Service to Mathematics Department

8. Department Chair, 2015-2018.
 - (h) WASC (Western Association of Schools & Colleges) Self Study, Report, and External Evaluation.
 - (g) Personnel: Hired 1 Tenure-track Assistant Professor (Computer Science), 6 Visiting Assistant Professors, 1 Lecturer, 5 Adjunct Instructors, 1 Secretary, Did not rehire: 2 Adjunct Instructors, 1 Secretary.
 - (f) Promotions: Two colleagues awarded tenure. One colleague promoted to Full Professor. One colleague awarded Campus Teaching award. One junior faculty admitted into Project NExT.
 - (e) Curriculum - new degrees: Established Integrated Computer Science program (three new joint majors – ICS-Mathematics, ICS-Physics, and ICS/3+2 Engineering, and new minor in Computer Science). Established Math-Economics joint major.
 - (d) Curriculum - math major: Rewrote requirements for mathematics major. Established new emphases with math major in Pure Mathematics, Applied Mathematics, Teaching. Created two-year, regular rotation of mathematics and computer science course offerings. Recalibrated mathematics placement test cut-offs.
 - (c) Textbooks: Adopted Openstax.Org free, online textbooks for courses up to Calculus III.
 - (b) Facilities: Oversaw move (18 months) to temporary facility during remodeling of Science & Learning Center.
 - (a) Growth: Offered 24 courses in Spring 2015. Offered 36 courses in Fall 2018.
7. Dual Enrollment Program for Extraordinary High School Students, Founding Coordinator, 2011 - 2018.
6. Search Committee for Fred Park, Tenure-track position in Mathematics, 2012.
5. Started Pi Mu Epsilon chapter, 2011. Advisor, 2011-2013.
4. Resurrected Math Club, 2009. Advisor, 2009 - 2013.
3. Resurrected Math Colloquia, 2009. Coordinator, 2009 - 2015.
2. Encouraged students to pursue REUs and fellowships, 2009 - present.
1. Search Committee for Bill Kronholm, Tenure-track position in Mathematics, 2010.

Service to the College

13. Educational Resources Committee (Faculty Committee), 2016-present. Chair 2018-2020.
12. Whittier College Budget Group (Joint Faculty-Administration Committee), 2018-2020.
11. Internal Evaluator, for Fatos Radoniqi's Application for Tenure and Promotion, Department of Business Administration, 2018.
10. Men's Soccer Faculty Liaison, 2017-Present.
9. Undergraduate Fellowships Committee (Faculty Committee), 2011-2016, Chair 2014-2016.
8. Dual Enrollment Program for Extraordinary High School Students, Math Coordinator, 2011-2018, Co-sponsor for College-wide program, 2012-2018.
7. HHMI Project SMaRT (Science and MATH Research and Teaching) Steering Committee, 2011-2016, Instructor, 2013.
6. Meetings with Hunter College Arts Across the Curriculum Initiative advising their application to Mellon Foundation, hosted by Center for the Collaboration with the Arts, February 2012.
5. Search Committee for Lauren Swanson, Tenure-track position in Science and Math Education, 2011.
4. Educational Policy Committee (Faculty Committee), Study Abroad Subcommittee, 2009-2011.

3. Enrollment & Student Affairs Committee (Faculty Committee), Advisement & Student Retention Subcommittee, 2007-2009.
2. Mathematics Liaison, Mellon Mays Undergraduate Fellowship, 2008-2009.
1. Conversation on Institutionalizing Undergraduate Research, Spring 2008.

Memberships

American Mathematical Society, Mathematical Association of America, So-Cal Nevada Section, MAA SIG-MAA in Sports and Mathematics (charter member), Pi Mu Epsilon, National Alliance for Doctoral Studies in the Mathematical Sciences. Mathematics Equity in Southern California Network (charter member).

Languages

English, Native Speaker. Spanish, ILR/FSI Level 5 competency. French, ILR/FSI Level 3 competency.

References

Available upon request.