

ANNA C. ABOUD

CURRICULUM VITAE

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Westmont College, Santa Barbara, CA 93108

ACADEMIC DEGREES AND CERTIFICATIONS

- 2014 – 2019 **Ph.D. in Mathematics**, Iowa State University
Thesis title: *A Dualized Kaczmarz Algorithm for Hilbert and Banach Space*
Advisor: Eric Weber
- 2012 – 2015 **Alaska Teaching Certification**
Secondary Mathematics and German Endorsement
Highly qualified status in Mathematics, German, and English
- 2010 – 2012 **Master of Arts in Secondary Education**, University of Alaska Anchorage
Advisor: Sunny Mall
- 2006 – 2010 **Bachelor of Science**, Wheaton College
Majors: Mathematics, German
Advisor: Mary Vanderschoot

RESEARCH INTERESTS

Mathematics: Computational Harmonic Analysis, Functional Analysis, Frame Theory
Mathematics Education: Teacher Education, Curriculum Development, Motivation Theory

EMPLOYMENT

- 2019 **Assistant Professor**, Westmont College
- 2018 – 2019 **Curriculum Developer**, Iowa State University and the Howard Hughes Medical Institute
- 2018 **Course Instructor**, Iowa State Office for Precollegiate Programs for Talented and Gifted
- 2017 – 2018 **Lead Teaching Assistant**, Department of Mathematics, Iowa State University
- 2014 – 2018 **Teaching Assistant**, Department of Mathematics, Iowa State University
- 2013 – 2014 **Adjunct Professor of Mathematics**, University of Alaska Anchorage
- 2012 – 2013 **Secondary Mathematics Teacher**, Birchwood Christian School

RESEARCH PROJECTS

Aug 2018 – 2019 **Research Assistant**

National Science Foundation: *Algorithms for Threat Detection: Efficient and Stable Algorithms for Non-Euclidean Regression in Discrete Geometries*

- Principal Investigator: Eric Weber
- Developed theoretical groundwork for a Kaczmarz algorithm extension for use in anomaly detection
- Worked to show the robustness of certain algorithms in large data sets when exposed to perturbation

2017 – 2018 **Research Assistant**

Howard Hughes Medical Institute: *Engage to Excel*

- Principal Investigators: Craig Ogilvie, Heather Bolles, Amanda Baker
- Analyzed quantitative data to evaluate the efficacy of new teaching methods in Calculus I classes at Iowa State University
- Designed a measurement used to evaluate the incoming competency of Calculus I students
- Coordinated, conducted, and coded two rounds of student interviews for use in a qualitative study involving student engagement in Calculus II

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TEACHING EXPERIENCE

- F 2019 (Instructor) Geometry, *Westmont College*
F 2019 (Instructor) Calculus I, *Westmont College*
F 2019 (Instructor) Fundamentals of Mathematics, *Westmont College*
F 2017 (Recitation Instructor) Team-Based Learning Math 165 Calculus I, *Iowa State University*
S 2017 (Distance Learning Instructor) Math 150 Discrete Math for Business and Social Sciences, *Iowa State University*
F 2016 (Grader) Math 515 Graduate Real Analysis, *Iowa State University*
Su 2016 (Instructor) Math 165 Calculus I, *Iowa State University*
S 2016 (Recitation instructor) Math 267 Differential Equations, *Iowa State University*
F 2015 (Recitation instructor) Math 267 Differential Equations, *Iowa State University*
Su 2015 (Grader) Math 317 Linear Algebra, *Iowa State University*
Su 2015 (Grader) Math 265 Calculus II, *Iowa State University*
S 2015 (Recitation instructor) Math 267 Differential Equations, *Iowa State University*
F 2014 (Recitation instructor) Math 166 Calculus II, *Iowa State University*
Su 2014 (Instructor) Math 107 College Algebra, *University of Alaska Anchorage*
S 2014 (Instructor) Math 107 College Algebra, *University of Alaska Anchorage*
F 2013 (Instructor) Math 272 Applied Calculus, *University of Alaska Anchorage*
F 2013 (Instructor) Math 172 Applied Finite Mathematics, *University of Alaska Anchorage*
2012 – 2013 (Instructor) Algebra II, *Birchwood Christian School*
2012 – 2013 (Instructor) Calculus BC, *Birchwood Christian School*
2012 – 2013 (Instructor) Pre-Algebra, *Birchwood Christian School*
2012 – 2013 (Instructor) British Literature, *Birchwood Christian School*
2011 – 2012 (Student Teacher) Algebra A, *East High School*
2011 – 2012 (Student Teacher) Algebra B, *East High School*
2011 – 2012 (Student Teacher) Geometry, *Begich Middle School*
2008 – present (Private Tutor) 3rd-8th Grade Math, Pre-Algebra, Algebra I and II, Geometry, Pre-Calculus, Calculus AB and BC, Calculus I, II, and III, Linear Algebra, Differential Equations

PUBLICATIONS

Peer Reviewed Journals

- (1) Anna Aboud, Emelie Curl, Steven Harding, Mary Vaughan, Eric Weber. *A Dual Kaczmarz Algorithm*. In *Acta Applicandae Mathematicae*. <https://doi.org/10.1007/s10440-019-00244-6>

Peer-Reviewed Conference Papers

- (1) Heather Bolles, Travis Peters, Elgin Johnston, Thomas Holme, Craig Ogilvie, Alexis Knaub, Chassidy Bozeman, Stefanie Wang & Anna Seitz (Aboud). *Investigating Student Success in Team-Based Learning Calculus I and in Subsequent Courses*. In *Proceedings of the 21st Annual Conference on Research in Undergraduate Mathematics Education*

Papers in Preparation

- (1) Amanda R. Baker, Anna Aboud, and Heather Bolles. *Students' Psychological Needs and Engagement in Team-Based College Calculus Courses*. In review.

SELECTED SEMINAR TALKS

- Nov 2018 *A Generalized Kaczmarz Algorithm*, Iowa State University
Apr 2018 *The Cantor Set: Pattern and Paradox*, Wheaton College
Apr 2018 *The Cantor Set: Pattern and Paradox*, Grinnell College
Dec 2017 *Frames and why we care about them*, Iowa State University

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CONFERENCE AND WORKSHOP PRESENTATIONS

- Apr 2019 *An Efficient Algorithm for Perturbed Data Sets* Association for Women in Mathematics Research Symposium, Rice University
- Jan 2019 *A Dual Kaczmarz Algorithm* Joint Mathematics Meetings, Baltimore, MD
- Jan 2019 *Two Studies in Team Based Learning* Joint Mathematics Meetings, Baltimore, MD
- Nov 2018 *A Dual Kaczmarz Algorithm* Mid-Atlantic Analysis Meeting, Virginia Tech
- Oct 2018 *A Dual Kaczmarz Algorithm* 3rd Annual Northeastern Analysis Meeting, SUNY New Paltz
- Oct 2018 *Two Studies in Team Based Learning* North Central MAA Section Meeting, Southwest Minnesota State University
- Oct 2018 *A Dual Kaczmarz Algorithm* Algorithms for Threat Detection, American University
- Oct 2018 *Implementation of Team Based Learning Calculus at Iowa State University* Iowa MAA Section Meeting, Morningside College
- Aug 2018 *Team Based Learning Calculus* Mathfest Themed Contributed Paper Session: Encouraging Effective Teaching Innovation, Denver, CO
- Aug 2018 *Lost in Translation?* Mathfest Great Talks for a General Audience, Denver, CO
- Jun 2018 *Fractals and Invariant Measures* CBMS Conference on Harmonic Analysis: Smooth and Non-Smooth, (Bootcamp Talk), Iowa State University
- May 2018 *A Generalized Kaczmarz Algorithm* 7th International Conference on Computational Harmonic Analysis, Vanderbilt University

GRANTS

2019	Association for Women in Mathematics, Symposium Travel Grant	\$625
2018	American Mathematical Society, Joint Mathematics Meetings Travel Grant	\$500
2017	American Mathematical Society, Sectional Meeting Travel Grant	\$250

SPECIAL TRAINING

- Apr 2019 Midwest Big Data Summer School
- Aug 2018 Inquiry-Based Learning (IBL) Minicourse run by the MAA IBL Sigma
- Aug 2017 Team-Based Learning Training Workshop at Iowa State University
- 2017 Teaching and Learning Community (Seminar) at Iowa State University

SERVICE AND OUTREACH

- 2018 – present Sonia Kovalevsky Day organizer, Iowa State University
- 2018 CMBS Conference on Harmonic Analysis volunteer, Iowa State University
- 2017 Math for Elementary Teachers volunteer teaching assistant, Iowa State University
- 2017 – 2018 Mathematics Graduate Student Organization Council, Iowa State University
- 2014 – present First-year graduate student peer mentor, Iowa State University
- 2013 Elementary Mathematics Enrichment Program, coordinator and presenter, Anchorage Montessori School
- 2012 – 2013 Alaska Council of Teachers of Mathematics copy editor

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CONFERENCES AND WORKSHOPS ATTENDED

- Apr 2019 Association for Women in Mathematics Research Symposium, Houston, TX
- Jan 2019 Joint Mathematics Meetings, Baltimore, MD
- Nov 2018 Mid-Atlantic Analysis Meeting, Blacksburg, VA
- Oct 2018 3rd Annual Northeastern Analysis Meeting, New Paltz, NY
- Oct 2018 North Central MAA Section Meeting, Marshall, MN
- Oct 2018 Algorithms for Threat Detection, Washington, D.C.
- Oct 2018 Iowa MAA Section Meeting, Sioux City, IA
- Aug 2018 Mathfest, Denver, CO
- Jun 2018 CMBS Conference on Harmonic Analysis: Smooth and Non-Smooth, Ames, IA
- May 2018 7th International Conference on Computational Harmonic Analysis, Nashville, TN
- Apr 2018 Midwest Women in Mathematics Symposium, West Lafayette, IN
- Feb 2018 RUME (Research in Undergraduate Mathematics Education), San Diego, CA
- Feb 2018 February Fourier Talks, College Park, MD
- Oct 2017 Iowa-Nebraska-Kansas Functional Analysis Seminar, Lincoln, IA
- Sept 2017 American Mathematical Society Sectional Meeting, Orlando, FL
- Aug 2017 Team Based Learning Workshop, Ames, IA
- Apr 2017 Iowa-Nebraska-Kansas Functional Analysis Seminar, Creighton, NE
- Oct 2016 Iowa-Nebraska-Kansas Functional Analysis Seminar, Des Moines, IA
- June 2016 Noncommutative Analysis Workshop, Iowa City, IA
- Apr 2016 Iowa-Nebraska-Kansas Functional Analysis Seminar, Des Moines, IA

AWARDS AND HONOR SOCIETIES

- 2019 Midwestern Association of Graduate Schools Excellence in Teaching - Honorable Mention
(2nd place out of over 180 graduate institutions)
- 2019 Iowa State University Outstanding Teaching Assistant
(Awarded to one PhD student at Iowa State each year)
- 2018 J.L.L Hinrichsen Teaching Award
- 2018 Iowa Section Project NEXt Fellow
- 2018 Graduate and Professional Student Senate Teaching Award
- 2017 Iowa State Graduate College Teaching Excellence Award
- 2017 Wakonse Fellowship for College Teaching
- 2012 Kappa Delta Pi, International Honor Society in Education
- 2010 Wheaton College Scholastic Honor Society

MEMBERSHIPS

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| American Mathematical Society | Association of Christians in the Mathematical Sciences |
| Association for Women in Mathematics | National Council of Teachers of Mathematics |
| American Educational Research Association | Alaska Council of Teachers of Mathematics |
| Mathematics Association of America | |