

Jessica C. De Silva

Department of Mathematics · California State University, Stanislaus

Curriculum Vitae

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Employment

Assistant Professor of Mathematics

California State University, Stanislaus

Turlock, CA

August 2018 – current

Education

Ph.D. in Mathematics

University of Nebraska–Lincoln

Dissertation Title: *Graphs with Few Spanning Substructures*

August 2018

M.S. in Mathematics

University of Nebraska–Lincoln

December 2014

B.A. in Mathematics

California State University, Stanislaus

May 2013

Publications

Anti-Ramsey Multiplicities

Australasian Journal of Combinatorics Volume 73, Issue 2 (2019). J. De Silva, X. Si, M. Tait, Y. Tuncbilek, R. Yang, M. Young. http://ajc.maths.uq.edu.au/pdf/73/ajc_v73_p357.pdf

Turán Numbers of Vertex-Disjoint Cliques in r -Partite Graphs

Discrete Mathematics Volume 341, Issue 2 (2017). J. De Silva, K. Heysse, A. Kapilow, A. Schenfisch, M. Young. <https://authors.elsevier.com/a/1W53-H-cBBFY>

Increasing Paths in Edge-Ordered Graphs: The Hypercube and Random Graph

The Electronic Journal of Combinatorics Volume 23, Issue 2 (2016). J. De Silva, T. Molla, F. Pfender, T. Retter, M. Tait. <http://www.combinatorics.org/ojs/index.php/eljc/article/view/v23i2p15>

On the Distance Spectra of Graphs

Linear Algebra and Its Applications Volume 497, (2016), 66–87. G. Aalipour, A. Abiad, Z. Berikkyzy, S. Butler, J. Cummings, J. De Silva, W. Gao, K. Heysse, L. Hogben, F. Kenter, J. Lin, M. Tait. <http://arxiv.org/abs/1509.01196>

Hat-Guessing Strategies and the Cooperative Card Game Hanabi

Mathematics Magazine, Volume 88, No. 5 (2015), pp. 323–336. C. Cox, J. De Silva, P. DeOrsey, F. Kenter, T. Retter, R.J. Tobin. <http://www.jstor.org/stable/10.4169/math.mag.88.5.323>

The Combinatorics of Interval Vector Polytopes

The Electronic Journal of Combinatorics, Volume 20 Issue 3 (2013). J. De Silva, G. Dorfsman-Hopkins, J. Pruitt, A. Ruiz, M. Beck. <http://www.combinatorics.org/ojs/index.php/eljc/article/view/v20i3p22>

The Alignment of Arbitrary Contours Using Area Difference Distance Measurement

SIAM Undergraduate Research Online, Volume 5 (2012). J. De Silva, K. Murata, J. An. <http://www.siam.org/students/siuro/vol5/S01181.pdf>

Preprints

An analysis of a fair division protocol for drawing legislative districts

Submitted to *Social Choice and Welfare*. J. De Silva, B. Gales, B. Kagy, D. Offner.

<http://arxiv.org/pdf/1811.05705.pdf>

In Preparation

Math Alliance Newsletter

Australasian Journal of Combinatorics Volume 73, Issue 2 (2019). J. De Silva, X. Si, M. Tait, Y. Tuncbilek, R. Yang, M. Young. http://ajc.maths.uq.edu.au/pdf/73/ajc_v73_p357.pdf

Graphs with Few Spanning Pseudoforests

J. De Silva, A. J. Radcliffe.

Preparing for the Academic Job Market

Invited submission for the AMS Blog *e-Mentoring Network in the Mathematical Sciences*. J. De Silva.

Grants & Awards***Grants and funding*****(PI) Harnessing the Data Revolution: Data Science Corps Proposal**

Collaborative National Science Foundation grant with Fresno State and UC Merced.

Spring 2021
(in preparation)

Dataquest & AI Inclusive Underrepresented Genders Scholarship

Support for six months of premium access to Dataquest content.

Fall 2020
\$294 (funded)

2020 SACNAS Registration Scholarship

Funded by the Mathematical Sciences Research Institute.

Fall 2020
\$310 (funded)

(Co-PI) HHMI IE3 Pre-Proposal*

Howard Hughes Medical Institute Inclusive Excellence 3 grant.

*Competition delayed due to COVID-19.

Fall 2020
(accepted)

PUMP Undergraduate Research Group Grant

Preparing Undergraduates through Mentoring toward PhDs

Fall 2020–Spring 2021
\$11,000 (funded)

(Co-PI) 2020 Pacific Math Alliance Conference*

National Science Foundation Conferences and Workshops in the Mathematical Sciences

*Cancelled due to COVID-19.

Fall 2019–Spring 2020
(proposal prepared)

2020 Visiting Faculty Program

Department of Energy at Lawrence Berkeley National Laboratory

Summer 2020
\$59,000 (funded)

(Co-PI) 2019 Pacific Math Alliance Conference

National Science Foundation DMS - 1931009

Summer 2019 – Spring 2020
\$28,000 (funded)

Stanislaus State College of Science Faculty and Staff Development Funds

2019 PIC Math Summer Workshop Travel Grant

Spring 2019 – Summer 2019
\$1,485 (funded)

Women and Mathematics Ambassador for the IAS

Support for weekend conference funded by the Institute for Advanced Study.

Fall 2017 – Spring 2018
\$2,500 (funded)

Mini-Collaboration Grant

Grant funded by the NSF and NSA to visit research collaborators.

Fall 2016 – Spring 2017
\$1,500 (funded)

NSF Graduate Student Research Fellowship

The NSF-GRFP recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines.

Fall 2013 – Spring 2018
\$138,000 (funded)

Awards**Exceptional Service to Students Award**

Awarded 3 WTUs of assigned time.

Spring 2020
Stanislaus State

Sustainable Research Pathways 2019

Sustainable Horizons Institute

Fall 2019
Lawrence Berkeley
National Laboratory

2018 Lathisms Honoree

Lathisms features prominently the extent of the research and mentoring contributions of Latinxs and Hispanics in different areas of the Mathematical Sciences.

Fall 2018

Walter Mientka Graduate Teaching Award

Department award given annually to one graduate student for excellence in teaching.

Fall 2016

University of Nebraska–Lincoln

Outstanding First Year Graduate Student Award

Department award given annually to one successful first year student.

Fall 2014

University of Nebraska–Lincoln

J. Burton Vasche Award

Awarded to one outstanding Stanislaus State senior at commencement.

Spring 2013

Stanislaus State

Undergraduate Research Projects**Research Course in Graph Theory**Co-mentored with Pamela Harris at Williams College.
Williams College Students: TBD

Spring 2021

Williams College

Game Theoretic Analysis of Pokémon GOCo-mentored with Jonathan Brown at Bakersfield College.
Bakersfield College Students: Pablo Castro and Edenilson Zetino
Stan Student: Kevin Lopez; funded by RISE

Fall 2020 – current

Stanislaus State

Applying Data Techniques to Cellular Biology

Jesselyn LaBelle; funded by RISE.

Fall 2020 – current

Stanislaus State

Track & Field Data Science Project

Andrew Aguilar and Jasmin Rodriguez.

Fall 2020 – current

Stanislaus State

Track & Field Data Science Project

Aaron Cordeiro and Shirley; funded by PUMP URG.

Fall 2020 – current

Stanislaus State

A Hypergraph-based Image Segmentation Algorithm

Darcy Brunk and Juan Valencia; funded by VFP and SERSCA.

Summer 2020 – current

Stanislaus State

Track & Field Data Science Project*

Rommell Pennell.

*On pause during COVID-19.

Spring 2020

Stanislaus State

Data Science Projects

Andrew Aguilar, Kevin Lopez, Jasmin Rodriguez, Juan Valencia; funded by CSU-LSAMP and RISE.

Fall 2019 – Spring 2020

Stanislaus State

Campus Walkability

Andrew Aguilar, Samantha Batham, Felice Dacpano, Morgan Hogue, Teresa Martin, Jonathan Moss, Jasmin Rodriguez, Juan Valencia.

Spring 2019 – current

Stanislaus State

Summer Research Co-Advisor

Summer Undergraduate Applied Mathematics Institute at Carnegie Mellon University.

Summer 2017, 2018

SUAMI

Invited Talks**Image Segmentation via Hypergraph-based MRF Models**

If You Build It They Will Come: Presentations by Scholars in the National Alliance for Doctoral Studies in the Mathematical Sciences

Spring 2021

Joint Mathematics Meetings

Graphs with Few Spanning Pseudoforests

Women in Combinatorics Virtual Colloquium

Fall 2020

Women in Combinatorics

A Virtual Summer at Lawrence Berkeley National Laboratory

Cal State East Bay Mathematics Department Colloquium

Fall 2020

Cal State East Bay

A Virtual Summer at Lawrence Berkeley National Laboratory

Sonoma State Mathematics Department Colloquium

Fall 2020

Sonoma State University

A Hypergraph Image Segmentation Algorithm

Data Analytics and Visualization Research Group

Summer 2020

Lawrence Berkeley National

The (Data) Science of Instagram Filters*

Dinner with the Scientists

*Postponed due to COVID-19.

Laboratory

Spring 2020

Stanislaus State

Graphs with few Spanning Pseudoforests

Women in Mathematics Special Session

*Cancelled due to COVID-19.

Spring 2020*

AMS Western Sectional

Graphs with few Spanning Pseudoforests

Algebra, Geometry, and Combinatorics Seminar

Meeting

Spring 2019

San Francisco State University

A Graph Theorist's Perspective on the Card Game SET

Celebrating Women in Mathematics Colloquium Series

Spring 2019

CSU Fresno

Mathematics and Nutrition

Central California Mathematics Project

Fall 2018

Stanislaus State

Inspiration from a Former CSU Fellow

NSF-GRFP Writing Workshop

Fall 2018

CSUPERB Symposium

Hat Guessing and Hanabi

Distinguished Women in Mathematics Lecture Series

Spring 2017

San Francisco State University

Transitioning to Graduate School

New Graduate Student Welcome

Fall 2016

University of Nebraska–Lincoln

AMS Southeastern Sectional Meeting*The Complexity of ℓ -Hamilton Cycles in Hypergraphs*

Spring 2016

North Dakota State University

Hat Guessing and Hanabi

Math Club

Spring 2016

Nebraska Wesleyan University

If All You Have is Thor's Hammer

ISU Discrete Math Seminar

Spring 2016

Iowa State University

Hat Guessing and Hanabi

Joint Mathematics Meetings

Spring 2016

Seattle, WA

Flash Research Presentations

Short talks for meetings and programs within the College of Science.

Fall 2018 – Spring 2019

Stanislaus State

Contributed Talks and Panels

11 conference and seminar research talks and 11 invited graduate school panels.

2013 – 2018

Professional Development***Advocating for Students of Color in the Mathematics Community***

Professional development experience hosted by the American Mathematical Society.

Fall 2020

Virtual

The Meaning of Racial Equity

Webinar part of the Learning Lab's Equity Conversation Series.

Fall 2020

Virtual

paraDIGMS Fall Conference

Conference hosted by the American Mathematical Society.

Fall 2020

Virtual

Broadening Participation: 2020 MPS Workshop for New Investigators Hosted by the University of Florida in collaboration with the NSF Directorate for Mathematical and Physical Sciences (MPS).	Fall 2020 Virtual
Field of Dreams Conference An Institute for Mathematics and its Applications and National Alliance workshop.	Fall 2020 Virtual
Career Paths in the Mathematical Sciences An Institute for Mathematics and its Applications and National Alliance workshop.	Summer 2020 Virtual
PIC Math Summer Workshop in Data Science Preparing for Industrial Careers in Mathematical Sciences	Summer 2019 Brigham Young University
CIENCIA Summer Institute The Collaboration for Inclusive and Engaging Curriculum, Instruction, and Achievement	Summer 2019 Stanislaus State
USTARS Early Career Faculty Workshop Underrepresented Students in Topology and Algebra Research Symposium	Spring 2019 Iowa State University
Certificate in Inclusive Teaching	Spring 2019 – current Stanislaus State

Service

Club Advising and Mentoring

DZG Sorority Faculty Advisor Delta Zeta Gamma, Inc.	Fall 2020 – current Stanislaus State
FMP Faculty Mentor Faculty Mentor Program	Fall 2019 – current Stanislaus State
SACNAS Club Co-Advisor Society for the Advancement of Chicanos/Hispanics and Native Americans in Science	Fall 2019 – current Stanislaus State
SIAM Club Advisor Society for Industrial and Applied Mathematics	Fall 2018 – current Stanislaus State
LGBTQ+ Faculty Mentor Stan State LGBTQ+ Faculty Mentor Program	Fall 2018 – current Stanislaus State

Program, Seminar, and Conference Committees

51st Bay Area Discrete Math Conference Co-organizer With graduate students from UC Berkeley.	Spring 2021 Virtually hosted by UC Berkeley
The EDGE Program Application Evaluator Enhancing Diversity in Graduate Education	Spring 2021
Fall 2020 Pacific Math Alliance Webinar Co-organizer Organized and co-hosted 6 webinars for mathematics students in the Pacific region.	Fall 2020 Virtual
50th Bay Area Discrete Math Conference Co-organizer With Anastasia Chavez.	Fall 2020 Virtually hosted by UC Davis

Northern California Undergraduate Mathematics Conference**Co-organizer**

With Kenneth Hoover and David Martin.

*Cancelled due to COVID-19.

Spring 2020*

Stanislaus State

49th Bay Area Discrete Math Conference Lead Organizer

Supported by the Stanislaus State College of Science, Institute for Mathematics and its Applications, and Elsevier.

Fall 2019

Stanislaus State

MA in Mathematics Education Working Group

With JungHa An, Michael Bice, Björg Jóhannsdóttir, and Lynda Wynn.

Fall 2019–current

Stanislaus State

PMA Funding and Conference Committee Member

Pacific Math Alliance

Fall 2018 – Fall 2020

Graduate Student Ambassador

Assist with graduate student recruitment and outreach initiatives.

Fall 2015 – Spring 2018

University of Nebraska–Lincoln

Women and Mathematics at CMU Lead Organizer

One-day event for undergraduate women in mathematics at Carnegie Mellon University supported by the IAS and CMU.

Fall 2017 – Spring 2018

WAM@CMU

Conference Planning Committee Member

Nebraska Conference for Undergraduate Women in Mathematics

Fall 2015 – Spring 2017

NCUWM

Steering Committee Member

Center for the Integration of Research, Teaching, and Learning

Fall 2016 – Spring 2018

CIRTL@Nebraska

Application Evaluator

UCARE funds undergraduate research at UNL.

Spring 2016, Spring 2017

University of Nebraska–Lincoln

Graduate Student Advisory Board Representative

Department of Mathematics

Fall 2013 – Spring 2015

University of Nebraska–Lincoln

Conference Sessions and Workshops Organized***Advances by Scholars in the Pacific Math Alliance****

With Andrea Arauza and Mario Banuelos.

*Cancelled due to COVID-19.

Spring 2020

AMS Western Sectional

Women in Science, Math is More than Just Bubbles

With Björg Jóhannsdóttir, Brian Jue, and David Martin.

Meeting

Spring 2019, 2020

Stanislaus State Annual
Science Day***Productive failure: What can we learn from our teaching mistakes?***

With Sarah Loeb, Emily Meehan, and Kimberly Ayers.

Fall 2018

Joint Mathematics Meetings

Early Career Women in Discrete Mathematics

With Jessalyn Bolkema.

Fall 2018

Joint Mathematics Meetings

NSF-GRFP Workshop Co-organizer

With Matt Cover and Koni Stone.

Fall 2018

Stan State CECE

Square One: The First Year of Graduate School

Webinar series with the Office of Graduate Studies.

Fall 2017

University of Nebraska–Lincoln

Mathematics and Statistics Breakout Session

UNL Campuswide TA Workshop

Summer 2016, 2017

University of Nebraska–Lincoln

Mathematics Graduate Student Seminar Co-organizer
With Nathan Poppelreiter.

Fall 2014 – Spring 2015
University of Nebraska–Lincoln

Journal Reviews

Discrete Applied Mathematics, Discrete Mathematics

Teaching

Senior Seminar in Mathematics (MATH 4960)
2 section, 21, 18 students.

Fall 2020, Spring 2021
Stanislaus State

Finite Mathematics (MATH 1500)
1 section, 30 students.

Spring 2021
Stanislaus State

Calculus I Laboratory (MATH 1412)
1 section, 19 students.

Spring 2020
Stanislaus State

Mathematics Component Co-facilitator
STEM Discovery Academy, with Kenneth Hoover.

Summer 2019
Stanislaus State

Operations Research (MATH 4430)
1 section, 24 students.

Fall 2019
Stanislaus State

Calculus II (MATH 1420)
2 sections, 29, 28 students.

Fall 2018, Spring 2019
Stanislaus State

Calculus I (MATH 1410)
7 sections, 28 – 35 students.

Fall 2018 – Spring 2021
Stanislaus State

Calculus I
1 section, 32 students.

Summer 2018
Carnegie Mellon University

Calculus II
1 section, 13 students.

Spring 2017
University of Nebraska–Lincoln

Math Modeling
1 section, 36 students.

Fall 2016
University of Nebraska–Lincoln

College Algebra
2 sections, 38 and 17 students respectively.

Fall 2014, Spring 2015
University of Nebraska–Lincoln