E. Fanny
Jasso Hernandez
Math PhD · Advanced Instructor · Academic Advisor · Virginia Tech

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Education

The George Washington University (GWU) *Washington DC, USA*
Doctor of Philosophy in Mathematics *2001-2007*
- Dissertation: A Homological Algebraic Approach to the Tutte Polynomial.

National Autonomous University of Mexico (UNAM *CDMX, Mexico*
Master of Science, Mathematics *1998-2001*

National Autonomous University of Mexico (UNAM *CDMX, Mexico*
Bachelor of Science, Mathematics *1992-1997*

Professional Experience

Department of Mathematics, VT *USA*
Advanced Instructor *Fall 2019 - present*
- Teacher of 1000-3000 level undergraduate courses.
- Serving in multiple committees. Advising undergraduate students. Peer mentor, and graduate GTA mentor.
- Contributor to multiple Diversity, Equity and Inclusion initiatives.

El Centro, (Cultural and Community Centers) VT *USA*
Faculty Fellow *2023-2024*
- Contribute to implementing projects related to supporting and diversifying VT students, faculty, and staff.
- Created the MateCharlas project. An ongoing weekly series of meetings that combines math, Spanish, and advising.

Department of Mathematics, VT *USA*
Instructor *2013 - Spring 2019*
- Teacher of 1000-3000 level undergraduate courses.
- Course coordinator.
- Serving in multiple committees.
- Advising undergraduate students. Peer mentor, and graduate GTA mentor.

Department of Mathematics, VT) *USA*
Academic Advisor *Fall 2016 - Present*
- Mathematics Advising Team. I advise yearly 80-120 math majors. From freshman level until graduation. Offer support to students in defining goals, selecting courses, improving study skills, succeeding in their academic goals.
- Lower Division Academic Advisor (from 2016-2019). Advised yearly about 40 entry-level math major students until their junior-level courses.

College of Sciences, UNAM *Mexico*
Masters Thesis Advisor *2012-2013*
- Supervised the Masters-level thesis by by Ulises Morales-Fuentes. Title: Anudamiento intrinseco de la grafica K7, una demostracion combinatoria (Intrinsic Knotting of the K7 Graph. A Combinatorial Proof)

Mathematics Institute (IMUNAM) *Mexico*
Postdoctoral Fellow *2008-2012*

Centro de Investigación en Matemáticas AC, CIMAT *Guanajuato, Mexico*
Visiting Assistant Professor *2007-2008*

The George Washington University *USA*
Lecturer and Graduate Teaching Assistant *2002-2007*

Honors & Awards

2024	**Selected Diversity Fellow** , for the College of Science at VT	*Virginia Tech, U.S.A*
2023	**Appointed: Faculty Fellow** , for El Centro (Cultural and Community Centers at VT)	*Virginia Tech, U.S.A*
2022-2023	**Nominated: College of Science Outstanding Academic Advisor Award**, COS Undergraduate Advising	*Virginia Tech, U.S.A*
2021-2022	**Recipient: College of Science Diversity Award**, In recognition of service efforts over the years, notably formation of, dedication to, and leadership of Matecharlas in partnership with the El Centro,	*Virginia Tech, U.S.A*
2001-2005	**Recipient: Scholarship for the PhD Program at GWU**, Granted by CONACyT	*CDMX, Mexico*

Research Papers

Artin Presentations of the Trivial Group and Hyperbolic Closed Pure 3-Braids
Co-author: Lorena Armas-Sanabria and Jesus Rodriguez Viorato *2023*
- arXiv:2306.09636
- We analyzed the symmetries of the hexatangle and give a list of Artin n-presentations for the trivial group. These presentations correspond to the double-branched covers of the hexatangle that produce S^3 after Dehn surgery.

A homological algebraic approach to the Tutte polynomial.
PhD Thesis *2007*
- Advisor: Yongwu Rong.
- Built a cochain complex associated to graphs and investigated some properties of such complex and its connection with a version of the Tutte polynomial.

A categorification for the Tutte polynomial.
Algebraic & Geometric Topology 6 (2006) 2031-2049. Co-author: Yongwu Rong *2006*
- DOI: 10.2140/agt.2006.6.2031
- For each graph, we construct a bigraded chain complex whose graded Euler characteristic is a version of the Tutte polynomial.

Courses Taught

2024 *Virginia Tech*
Undergraduate *U.S.A.*
- Intro to Multivariable Calculus (MATH-2204). Spring Semester

2023 *Virginia Tech*
Undergraduate *U.S.A.*
- Intro to Multivariable Calculus (MATH-2204). Fall Semester
- Elementary Linear Algebra (MATH-1114). Hybrid modality course. Spring Semester. (3 sections)

2022 *Virginia Tech*
Undergraduate *U.S.A.*
- Elementary Linear Algebra (MATH-1114). Hybrid modality course. Fall and Spring Semesters. (7 sections)

2021 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Modern Algebra (MATH-3124)
- Geometry Mathematics of Design (MATH-1535).Hybrid modality course.
- Elementary Linear Algebra (MATH-1114). Hybrid modality course. Fall and Spring Semesters. (8 sections)

2020 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Modern Algebra (MATH-3124). Spring, Summer and Fall terms (3 sections)
- Elementary Linear Algebra (MATH-1114). Hybrid modality course. Fall and Spring Semesters. (8 sections)

2019 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Elementary Linear Algebra (MATH-1114) Hybrid modality course. Fall and Spring Semesters. (7 sections)
- Modern Algebra (MATH-3124). Spring, Summer and Fall terms (3 sections)

2018 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Introduction to Discrete Math (MATH-2534).
  Spring term (1 section).
- Intro to Multivariable Calculus (MATH-2204). Spring and Fall term (3 sections).
- Modern Algebra (MATH-3124). Summer term.
- Elementary Linear Algebra (MATH-1114). Hybrid modality course. Fall term (4 sections).

2017 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Intro to Multivariable Calculus (MATH-2204). Spring and Fall term (6 sections).
- Introduction to Discrete Math (MATH-2534). Fall term (1 section).

2016 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Intro to Multivariable Calculus (MATH-2204). Spring (2 sections).
- Calculus of Single Variable (MATH-1225). Spring and Fall terms (3 sections).
- Calculus of Single Variable (MATH-1226). Summer term (1 section).

2015 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Calculus of Single Variable (MATH-1225). Fall term (3 sections).
- Intro to Multivariable Calculus (MATH-2204). Spring and Summer terms (3 sections).
- Calculus (MATH-1206). Spring term (1 section).

2014 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Elementary Linear Algebra (MATH-1114)
  Hybrid modality course. Fall and Spring Semesters

2013 *Virginia Tech*

UNDERGRADUATE *U.S.A.*

- Elementary Elementary Calculus with Trigonometry II (MATH-2015). Fall term (2 sections)
- Calculus I (MATH-1205). Fall term (2 sections)

2011 *UNAM*

MASTERS LEVEL *Mexico*

- Knot and Graph Invariants and their Categorifications
  Facultad de Ciencias
- General Topology
  Facultad de Ciencias

2010 *UNAM*

MASTERS LEVEL *Mexico*

- Knot and Graph Invariants and their Categorifications
  Facultad de Ciencias.

2010 *CIMAT*

MASTERS LEVEL *Mexico*

- Workshop on Low Dimensional Topology

Outreach Projects and collaborations

Co-creator and collaborator. *Virginia Tech*
Math Experience Studio Project *2018-present*
- Joint project with Veronica Montes and Jessica Schmale that aims to enhance the development and maturity of transfer students in upper level math courses. Our team got awarded with the COS Diversity Fellowship for this project

Creator and Organizer *Virginia Tech*
MateCharlas Project *2018-present*
- One hour weekly discussions that combine Math, advising, and Spanish

4th Virginia Tech Latinx Symposium *Virginia Tech*
Moderator: Latinas in STEM/Academia Panel *March 2, 2023*
- Discussed female/Latinx representation in STEM careers, obstacles and challeges, and ideas on how to build a stronger community of Latinas in STEM/Academia at Virginia Tech.

Facultea at West Ambler Johnston, VT *Virginia Tech*
Knot Theory, Adapting to College, and other experiences of a First Gen Student *October 24, 2022*
- Invited Talk by principal for the Residential College at West Ambler Johnston, one of VT's Living Learning Community.

First Virginia Tech Latinx Symposium *Virginia Tech*
Participant in Faculty Panel Discussion *October 25, 2019*
- Discussion on how the Hispanic/Latinx identity has shaped experiences as faculty.

VT Math Experience *Virginia Tech*
Classifying Knots *March 9, 2020*
- Outreach talk for high school students with the goal to spike their interest in mathematics as a career choice.

Career Day, Mathematics Department *Virginia Tech*
Classifying Knots *January 17, 2019*
- Outreach talk that introduced the mathematical idea of knots. Geared for middle school students in hopes of inspiring their interest in mathematics as a career choice.

Selected Seminars & Conference Talks

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XLIV Congreso Nacional de la SMM *San Luis Potosí, Mexico*
The Jones Polynomial, its Origins and Some Properties *October 13, 2011*
- Invited talk in Spanish (El Polinomio de Jones para nudos y enlaces. Orígenes y propiedades) for the XLIV National Conference for the Mexican Mathematical Society (SMM)

Low Dimensional Topology Seminar at IMUNAM *Mexico*
Dimer Models and the Jones Polynomial *May 13 and 26, 2011*
- Invited Two talk series in Spanish (Modelos de dímer y el polinomio de Jones) for Mathematics Institute at UNAM (IMUNAM)

Seminar of Applications of Knot Theory and Graph Theory to RNA Study at IMUNAM *Mexico*
Introduction to RNA basics *February 17, 2011*
- Introductory talk in Spanish (Antecedentes biológicos del ARN) at the Mathematics Institute at UNAM (IMUNAM)

Facultad de Ciencias, UAEM *Mexico*
Knots and Graphs, a Friendship with Benefits *February 17, 2011*
- Invited Outreach conference talk in Spanish (Nudos y gráficas: Una amistad con beneficios) at the Universidad Autónoma del Estado de México (UAEM)

First Joint Meeting American Mathematical Society-Sociedad de Matemática de Chile *Pucón, Chile*
Some properties of Graph homologies *December 18, 2010*
- Invited Talk

XLIII Congreso Nacional de la SMM *Chiapas, Mexico*

Properties of Medial and Interlace Graphs Associated with Knots *November 2, 2010*

- Conference talk in Spanish (Propiedades de las gráficas medial y de entrelazamiento asociadas a nudos) for the XLIII National Conference for the Mexican Mathematical Society.

International Conference Japan-Mexico, Topology and its Applications *Colima, Mexico*

Relationships between Khovanov homology and the categorification of graph polynomials *September 28, 2010*

- Invited Talk, hosted by Universidad de Colima

American Mathematical Society-Sociedad Matemática Mexicana Eight International Joint Meeting *Berkeley, USA*

Relations between Graph Homologies and Khovanov homology *June 5, 2010*

- Invited Talk, hosted by UC Berkeley

Workshop on Low Dimensional Topology, CIMAT *Guanajuato, Mexico*

Categorification of graph polynomials. Properties and connections. *January 3, 2010.*

- Workshop hosted at the Centro de Investigacion the Matematicas AC(CIMAT)

Seminar of Instituto de Matemáticas, Campus Oaxaca, UNAM *Oaxaca, Mexico*

The Arf Invariant *November 27, 2009.*

- Invited Talk. Talk in Spanish (El invariante de Arf)

Colegio de Ciencias y Humanidades Plantel Sur, UNAM *CDMX, Mexico*

A Walk Through Topology *November 23, 2009*

- Invited Outreach Talk. Talk in Spanish (Un paseo por la topología)

II Mathematics Colloquium of Facultad de Ciencias, UNAM *Mexico*

Tait Graphs: A connection between knots and graphs *October 16, 2009*

- Invited talk in Spanish (Gráficas de Tait: Una conexión entre gráficas y nudos)

Seminar: J.J. Charatonik de Continuos at Instituto de Matemáticas at IMUNAM *Mexico*

Knots and Homology Groups assigned to graphs *March 16, 2009*

- Invited talk in Spanish (Nudos y Grupos de homologías asociados a gráficas) at the Mathematics Institute, UNAM (IMUNAM)

Seminar: Guillermo Torres in Topology and Geometry at IMUNAM *Mexico*

Relationships between Khovanov Homology for knots and Graph homologies *December 4, 2008*

- Invited talk in Spanish (Conexiones entre la homología de Khovanov para nudos y homologías de gráficas) at the Mathematics Institute, UNAM (IMUNAM)

Low Dimensional Topology Seminar at IMUNAM Cuernavaca *Morelos, Mexico*

Knot invariants and homologies *November 7, 2008*

- Talk in Spanish (Invariantes de nudos y homologías).

First Mathematics Colloquium of Facultad de Ciencias, UNAM *Mexico*

The Jones Polynomial and homologies assigned to knots *October 20, 2008.*

- Invited talk in Spanish (El polinomio de Jones y homolgías asociadas a nudos)

Other Skills

Programming Languages LaTeX, Mathematica

Spanish (Native Speaker); English (Full professional proficiency); French (Limited working proficiency)