E. Fanny Jasso-Hernandez

Instructor at Virginia Tech

Contact

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Education

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

1998-2001 **Master of Science** — National Autonomous University of Mexico (UNAM), Mx
Mathematics

1992-1997 **Bachelor of Science** — School of Sciences at UNAM, Mx
Mathematics

Professional Experience

2013-Present
Instructor at the Department of Mathematics — Virginia Tech, USA

Fall 2016-Present
Lower Division Academic Advisor — Virginia Tech, USA
Advising 45 Math majors per year.

2012-2013 **Masters Thesis Advisor** — School of Sciences, UNAM, Mx
Title: Anudamiento intrinseco de la grafica K_7, una demostracion combinatoria
(Intrinsic Knotting of the K_7 Graph. A Combinatorial Proof) by Ulises Morales-Fuentes

2008-2012 **Postdoctoral Fellow** — Instituto de Matemáticas, UNAM, Mx

2007-2008 **Visiting Professor** — Centro de Investigación en Matemáticas AC (CIMAT), Mx

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

Courses Taught

Undergraduate level:

Sp 2019	Modern Algebra-Math 3124,	
	Elementary Linear Algebra-Online course-Math1114;	Virginia Tech, USA
2018	Introduction to Multivariable Calculus-Math 2204,	
	Introduction to Discrete Math-Math 2534,	
	Modern Algebra-Math 3124,	
	Elementary Linear Algebra-Online course-Math1114;	Virginia Tech, USA
2017	Introduction to Multivariable Calculus-Math 2204,	
	Introduction to Discrete Math-Math 2534;	Virginia Tech, USA
2016	Introduction to Multivariable Calculus-Math 2204,	
	Calculus of a Single Variable I-Math 1225,	
	Calculus of a Single Variable II-Math 1226;	Virginia Tech, USA
2015	Introduction to Multivariable Calculus-Math 2204,	
	Calculus of a Single Variable I-Math 1225,	
	Calculus II -Math 1206;	Virginia Tech, USA
2014	Elementary Calculus with Trigonometry II-Math 2015,	
	Calculus of a Single Variable I-Math 1225,	
	Calculus of a Single Variable II-Math 1226,	
	Calculus II -Math 1206;	Virginia Tech, USA
2013	Elementary Calculus with Trigonometry II-Math 2015,	
	Calculus I -Math 1205;	Virginia Tech, USA
2012	Abstract Algebra,	Facultad de Ciencias, UNAM, Mx.
2009	Linear Algebra I,	
	Linear Algebra II;	Facultad de Ciencias, UNAM, Mx.
2008	Linear Algebra I;	Facultad de Ciencias, UNAM, Mx.
2007	Finite Math for the Social and Management Sciences;	GWU, USA.
2005	Graduate Teaching Assistant for the Summer Program for Woman in Math.	
	Cryptography and Groebner Bases;	GWU, USA
2004	Calculus for the Social and Management Sciences;	GWU, USA.
2003	Calculus for the Social and Management Sciences	
	(Distance Education Course)	GWU, USA.
2002	Calculus for the Social and Management Sciences;	GWU, USA.

2002-2007 Graduate Teaching Assistant for the courses:
Finite Mathematics for the Social and Management Sciences
Calculus for the Social and Management Sciences,
Calculus with Pre-Calculus II,
Single Variable Calculus; GWU, USA.

1996-1998 Undergraduate Teaching Assistant
Linear Algebra I,
Complex Analysis,
Analytic Geometry; Facultad de Ciencias, UNAM, Mx.

Graduate level:

2011 Knot and Graph Invariants and their Categorifications,
General Topology; Facultad de Ciencias, UNAM, Mx.

2010 Knot and Graph Invariants and their Categorifications,
Linear Algebra II; Facultad de Ciencias, UNAM, Mx.

Outreach and diversity

Jan. 2019 Presentation and activity leader on Career Day. Virginia Tech, USA
Organized by the Mathematics Department

Fall 2018-Present
Creator and organizeer of the MateCharlas Program Virginia Tech, USA

One hour weekly discussions that combine Math and Spanish. This is aimed to create an atmosphere of cooperation and exchange while at the same time to benefit minority students.

2006-2007 Collaboration in the logistics and organization of the Summer Program for Women in Mathematics at The George Washington University, USA. GWU, USA.

Scholarships Awarded

2001-2005 CONACyT scholarship to study abroad the PhD Program at
The George Washington University, DC, USA CONACyT, Mx

Research Papers

2007 A homological algebraic approach to the Tutte polynomial.
PH.D Thesis.

2006 *A categorification for the Tutte polynomial*.
Co-Author: Yongwu Rong.
Algebraic & Geometric Topology 6 (2006) 2031-2049.

Seminar and Conference Talks

- *Classifying Knots*
  Outreach presentation at Career Day, Virginia Tech, on January 17, 2019,
- *The Jones Polynomial, its Origins and Some Properties* (El Polinomio de Jones para nudos y enlaces. Orígenes y propiedades).
  Invited Talk on October 13, 2011, at XLIV Congreso Nacional de la Sociedad Matemática Mexicana, San Luis Potosí, SLP 2011.
- *Dimer Models and the Jones Polynomial* (Modelos de dímer y el polinomio de Jones).
  Two talk series for the Low Dimensional Topology Seminar at Instituto de Matemáticas de la UNAM on May 13 and 26, 2011.
- *Introduction to RNA basics* (Antecedentes biológicos del ARN)
  Background talk for the Seminar of Applications of Knot Theory and Graph Theory to RNA Study on April 28, 2011.
- *Knots and Graphs, a Friendship with Benefits* (Nudos y gráficas: Una amistad con beneficios.)
  Outreach conference at Facultad de Ciencias of Universidad Autónoma del Estado de México. February 17, 2011.
- *Some properties of Graph homologies.*
  Invited talk for the First Joint Meeting American Mathematical Society-Sociedad de Matemática de Chile. Pucón, Chile; December 18, 2010.
- *Properties of Medial and Interlace Graphs Associated with Knots*, (Propiedades de las gráficas medial y de entrelazamiento asociadas a nudos).
  XLIII Congreso Nacional de la Sociedad Matemática Mexicana, Tuxtla Gutiérrez, Chiapas; November 2, 2010.
- *Relationships between Khovanov homology and the categorification of graph polynomials*
  Invited talk for the International Conference Japan-Mexico, Topology and its Applications, Universidad de Colima, Colima; September 28, 2010.

- *Relations between Graph Homologies and Khovanov homology*
  Invited talk for American Mathematical Society-Sociedad Matemática Mexicana Eight International Joint Meeting , Berkeley; June 5, 2010.
- *Categorification of graph polynomials. Properties and connections.*
  Talk for the Workshop on Low Dimensional Topology, CIMAT, Guanajuato, January 3, 2010.
- *Arf Invariant* (El invariante de Arf)
  Talk for the Seminar of Instituto de Matemáticas, Oaxaca Campus, UNAM. November 27, 2009.
- *A Walk Through Topology* (Un paseo por la topología)
  Invited Outreach Talk for students at Colegio de Ciencias y Humanidades Plantel Sur , UNAM, November 23, 2009.
- *Tait Graphs: A connection between knots and graphs* (Gráficas de Tait: Una conexión entre gráficas y nudos)
  Second Mathematics Colloquium of Facultad de Ciencias, UNAM, October 16, 2009.
- *Knots and Homology Groups assigned to graphs.* (Nudos y Grupos de homologías asociados a gráficas)
  Talk for the Seminar: J.J. Charatonik de Continuos at Instituto de Matemáticas, UNAM, March 16, 2009.
- *Relationships between Khovanov Homology for knots and Graph homologies*, (Conexiones entre la homología de Khovanov para nudos y homologías de gráficas.)
  Talk for the Seminar Guillermo Torres in Topology and Geometry at Instituto de Matemáticas, UNAM, on December 4, 2008.
- *Knot invariants and homologies*, (Invariantes de nudos y homologías)
  Low Dimensional Topology Seminar at Instituto de Matemáticas, UNAM-Cuernavaca. On November 7, 2008.
- *The Jones Polynomial and homologies assigned to knots.* (El polinomio de Jones y homolgías asociadas a nudos)
  First Mathematics Colloquium of Facultad de Ciencias, UNAM, México DF, October 20, 2008.
- *Knot Theory and Graph Homology. An overview and some open problems.*
  Invited talk for Research Seminar of the Department of Mathematics, Statistics and Computer Science at St. Olaf College, Minnesota, September 12, 2008.
- *Some relationships between Khovanov Homology, the chromatic homologies and Tutte homology.* Invited talk for the 4th Japan-Mexico Topology Conference, December 4, 2007.
- *Introduction to Khovanov Co-Homology Part 1-5. (Introducción a la Cohomología de Khovanov,*
  Five talk series for the Knot Theory Seminar at CIMAT, October-November 2007.
- *Tutte Co-Homology Properties*, (Propiedades de la (co)homología de Tutte)
  XL Congreso Nacional de la Sociedad Matemática Mexicana, Monterrey, NL, October 19, 2007.
- *A basic introduction to some useful LaTeX packages* (FKA LaTeX Beautification)
  Joint talk with Kerry Luse for the Graduate Student Seminar at The George Washington University, USA. February 23, 2007.

- *Khovanov Type Categorification for the Tutte Polynomial.*
  Joint Mathematics Meetings #1023, New Orleans, LA. January 2007.
- *How to use homology groups to store information of knots and graphs.*
  Graduate Student Seminar at The George Washington University, October 13, 2006.
- *Categorifying the Tutte polynomial*
  AMS Meeting 1017: Durham, New Hampshire, April 23, 2006.
- *A Homological Algebraic Approach to the Tutte Polynomial.* Graduate Student Topology Conference, Indiana University, Bloomington, April 2, 2006.
- *A categorification for the Tutte polynomial*
  Knots in Washington XXI Conference, December 9, 2005.

Committee Service

2018-Present

Scholarship Committee — Virginia Tech, USA

Reviewer of mathematics major students' eligibility and evaluation to designate scholarships.

2019-Present

Instructor Executive Committee. — Virginia Tech, USA

Annual reviews of the about 40 instructors' reports. Conduct instructor evaluation and provide feedback and recommendations for promotions.

Fall 2014-Present

GTA Mentor and Graduate Teaching Certification — Virginia Tech, USA

Participated in the evaluation program each semester
Mentored about 12 GTAs to get certified for this program.

Fall 2015-Present

Peer Advising Activities — Virginia Tech, USA

Mentoring one first year instructor
Developing teaching material, guidance and resources for teachers of Math 1225

2015-Present

Common Time Exam Committees. — Virginia Tech, USA

Question writer, proofreader and editor for the common time exams for Calculus I -Math 1205, Calculus of a Single Variable I-Math 1225, Calculus of a Single Variable II-Math 1226, and Introduction to Multivariable Calculus-Math 2204.

Fall 2018-Present

Course Coordinator of
Elementary Linear Algebra-Online course-Math1114 — Virginia Tech, USA

2015-2018	Curriculum Development	Virginia Tech, USA
	Updated and redesigned the syllabus for Calculus of a Single Variable I-Math 1225, Redesigned WebAssign quizzes, Developed material to help teaching Math 1225 and using WebAssign, Design practice problems material for Multivariable Calculus	
2015-2017	Course Coordinator for Calculus of a Single Variable I-Math 1225	Virginia Tech, USA
	Approximately 43 sections, over 1500 students each semester.	
2016-2017	Course Co-Coordination for 43 sections of Math 1225	Virginia Tech, USA
2013-2017	Registration Committee	Virginia Tech, USA
2011	Writing commitee for the qualifying exam in General Topology	
	Graduate program in Mathematics at UNAM.	Facultad de Ciencias, UNAM, Mx.

Professional Development and Continued Education

Advising Conferences Attended:

- 9th Annual Advising Matters conference (March 4, 2019) Theme “Advising Matters: Putting Students First”.
- 8th Annual Advising Matters Conference. (March 1, 2018) Theme “Facilitating Student Success Through Experiential Learning”.
- VT Engage - Deliberative Dialogue on Race and Advising (April 13, 2018). Workshop-conversation on different approaches involving race and advising in a different spectrum ranging from color-blindness to race-based advising.

Workshops Attended:

- Securing the Human. (July 2, 2015) Training offered by the Virginia Tech Information Technology Security Office. Topics included: data security, viruses, hacking vulnerabilities and the Family Educational Rights and Privacy Act (FERPA).
- Canvas Instructor Orientation. (June 20, 2016) An online course designed to familiarize instructors with the basic tools and features of Canvas.
- Cengage Webinar - WebAssign Question Coding Workshop. (November 9, 2018) Introduction on how to code WebAssign questions.
- Strategies for Active Engagement in the Classroom (March 25, 2015) Strategies and ideas for creating more engaging learning environments.
- Strategies for Mindful Teaching and Learning (May 19-20, 2015) Creation of learning environments that could help the students develop and sustain focus and engagement with our curriculum.

- A Blue Print for Creating Expert Learners: Universal Design for Learning Boot Camp. (May 14-15, 2018) Principles of Universal Design. Guidance to plan courses considering a more inclusive environments.

Additional Skills

Learning Mgt. Sys.	Canvas, Moodle, Blackboard
Advising Software	Student Success Collaborative-EAB-Navigate
Database Querie	Excel

Languages

Spanish	Native Speaker.
English	Fluent.
French	Ability to read and understand basic conversations.