

Curriculum Vitae

JAVIER ALEJANDRO CHÁVEZ-DOMÍNGUEZ

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Appointments

- 2021-Present **University of Oklahoma**, Norman, OK.
Associate Professor.
- 2015-2021 **University of Oklahoma**, Norman, OK.
Assistant Professor.
- 2014-2015 **Instituto de Ciencias Matemáticas**, Madrid, Spain.
Severo Ochoa Postdoctoral Researcher.
- 2012-2015 **University of Texas at Austin**, Austin, TX.
R.H. Bing Instructor.

Education

- 2012 Ph.D. **Texas A&M University**, Mathematics.
Advisor: William B. Johnson.
Thesis: Operator Ideals in Lipschitz and Operator Spaces Categories.
- 2006 M.Sc. **National Autonomous University of Mexico**, Mathematics.
Thesis: On a generalization of Schlumprecht's space.
- 2004 B. Sc. **University of Guanajuato**, Mexico, Mathematics.
Thesis: Construction of infinitely many nonisomorphic arbitrarily distortable spaces.

Research interests

Linear and nonlinear functional analysis, Banach spaces, operator spaces and their applications, signal processing, low-rank matrix recovery, frames, quantum graphs and quantum metric spaces, quantum information.

Awards

- 2023—2024 Kinney-Sugg Outstanding Professor of the Year, Dodge Family College of Arts and Sciences, University of Oklahoma. ¹
- 2023—2026 National Science Foundation Grant DMS-2247374, "Quantum Perspectives in Banach and Metric Spaces", \$162,119.
- 2019—2023 National Science Foundation Grant DMS-1900985, "Banach Spaces with a Focus on Sobolev-Style Spaces, Frame Theory, and Quantum Graphs", \$154,264.
- 2016 Alternative Textbook Initiative Grant from the OU Libraries (\$1,200), with a 50% match from the Dean of the College of Arts and Sciences for a total of \$1,800.
- 2014—2017 National Science Foundation Grant DMS-1400588, "Nonlinear and noncommutative perspectives in Banach space theory", \$91,361.
- 2012—2015 R.H. Bing fellowship, \$10,000 plus \$1,000 travel allowance per year, University of Texas at Austin.
- 2012—2014 Faculty Travel Grant, \$1,200 per year, University of Texas at Austin.

¹First Mathematics Faculty recipient in the more than two decades of existence of the award.

Publications

Book

1. *Operator space tensor norms*. With V. Dimant and D. Galicer. To appear in *Springer Lecture Notes in Mathematics*. <https://link.springer.com/book/9783031962080>

Peer-reviewed journal articles

29. *Linearizing holomorphic functions on operator spaces*. With V. Dimant. Submitted for publication. [arXiv:2405.08826](https://arxiv.org/abs/2405.08826) [math.FA].
28. *The p -Operator Approximation Property*. With V. Dimant and D. Galicer. To appear in *Israel Journal of Mathematics*. [arXiv:2410.05014](https://arxiv.org/abs/2410.05014) [math.FA].
27. *Revisiting operator p -compact mappings*. With V. Dimant and D. Galicer. To appear in *Revista Matemática Complutense*. [arXiv:2405.18571](https://arxiv.org/abs/2405.18571) [math.FA].
26. *On the small scale nonlinear theory of operator spaces*. With Bruno M. Braga. *Comptes Rendus. Mathématique*, Volume 362 (2024), pp. 1893–1914.
25. *Uniform homeomorphisms between spheres of unitarily invariant ideals*. Submitted for publication. [arXiv:2305.07169](https://arxiv.org/abs/2305.07169) [math.FA]
24. *Lipschitz geometry of operator spaces and Lipschitz-free operator spaces*. With Bruno M. Braga and Thomas Sinclair. *Mathematische Annalen*, 388 (2024), 1053–1090.
23. *Asymptotic dimension and coarse embeddings in the quantum setting*. With A. Swift. *Journal of Topology and Analysis*, 15 (2023) no. 02, 545–565.
22. *Completely coarse maps are \mathbb{R} -linear*. With Bruno M. Braga. *Proc. Amer. Math. Soc.* 149 (2021), no. 3, 1139–1149.
21. *Positive p -summing operators and disjoint p -summing operators*. With D. Chen and A. Belacel. *Positivity* 25 (2021), no. 3, 1045–1077.
20. *Connectivity for quantum graphs*. With Andrew Swift. *Linear Algebra Appl.* 608 (2021), 37–53.
19. *Isoperimetric and Sobolev inequalities for magnetic graphs*. Preprint.
18. *Ando-Choi-Effros liftings for regular maps between Banach lattices*. *Positivity* 25 (2021) 559–578.
17. *Operator p -compact mappings*. With V. Dimant and D. Galicer. *Journal of Functional Analysis*, 277 (2019) 2865–2891.
16. *Frame potential for finite-dimensional Banach spaces*. With D. Freeman and K. Kornelson. *Linear Algebra Appl.* 578 (2019), 1–26.
15. *An Ando-Choi-Effros lifting theorem respecting subspaces*. *J. London Math. Soc.* (2) 100 (2019), 914–936.
14. *Ideals of extendible Lipschitz maps*. With A. Jiménez-Vargas. Preprint.
13. *p -converging operators and Dunford-Pettis Property of order p* . With D. Chen and L. Li. *J. Math. Anal. Appl.* 461 (2018), no. 2, 1053–1066.
12. *Pelczyński's property (V^*) of order p and its quantification*. With D. Chen and L. Li. *Math. Nachr.* 291 (2018), no. 2-3, 420–442.
11. *Duality for ideals of Lipschitz maps*. With M. G. Cabrera-Padilla, A. Jiménez-Vargas and M. Villegas-Vallecillos. *Banach J. Math. Anal.* **11**, (2017), No. 1 108–129.
10. *Maximal Banach ideals of Lipschitz maps*. With M. G. Cabrera-Padilla, A. Jiménez-Vargas and M. Villegas-Vallecillos. *Annals of Functional Analysis* **7**, (2016), no. 4, 593–608.

9. *Lipschitz tensor product*. With M. G. Cabrera-Padilla, A. Jiménez-Vargas and M. Villegas-Vallecillos. *Khayyam Journal of Mathematics*. **11**, No. 1 (2015), 108–129.
8. *Some notions of transitivity for operator spaces*. With Timur Oikhberg. *Function spaces in analysis*, 49–61, *Contemp. Math.*, 645, Amer. Math. Soc., Providence, RI, 2015.
7. *The Chevet-Saphar tensor norms for operator spaces*. *Houston Journal of Mathematics*. **42**, No. 2 (2016), 577–596.
6. *Lipschitz p -convex and q -concave maps*. Preprint.
5. *Stability of low-rank matrix recovery and its connections to Banach space geometry*. With Denka Kutzarova. *Journal of Mathematical Analysis and Applications* **427** (2015), 320–335.
4. *Lipschitz factorization through subsets of Hilbert space*, *Journal of Mathematical Analysis and Applications*, **418** (2014) 344–356.
3. *Lipschitz (q, p) -mixing operators*, *Proceedings of the American Mathematical Society*, **140** (2012), no. 9, 3101–3115.
2. *Completely (q, p) -mixing maps*, *Illinois Journal of Mathematics*, **56** (2012), no. 4, 1169–1183.
1. *Duality for Lipschitz p -summing operators*, *Journal of Functional Analysis*, **261** (2011), no. 2, 387–407.

Papers in preparation

5. *Dynamical sampling in Banach spaces*. With D. Carando.
4. *Linearizing Lipschitz functions on operator spaces*. With V. Dimant.
3. *Asymptotic tensor products of operator spaces*. With V. Dimant and D. Galicer.
2. *Constructing tight unit norm frames for finite-dimensional Banach spaces using group actions*.
1. *Characterizing the Completely Bounded Approximation Property through liftings*.

Long research visits

- 2023 Mar-Jun University of Buenos Aires and University of San Andrés, Buenos Aires, Argentina.
 2023 Feb-Mar Instituto de Matemática Pura e Aplicada, Rio de Janeiro, Brazil.
 2011 Fall Quantitative Geometry program, MSRI, Berkeley, CA.

Lectures and presentations

Conference talks

- 2025 Jun. *Hypercontractivity on classical and quantum Boolean cubes: a tensor norm approach*. Di Tella Workshop on Analysis and Beyond. Universidad Torcuato Di Tella. Buenos Aires, Argentina.
 — May *Small scale geometry of operator spaces*. Functional and Metric Analysis and their Interactions. Institute of Mathematics of the University of Granada. Granada, Spain.
 — Jan. *Small scale geometry of operator spaces*. Joint Mathematics Meetings 2025. Special Session on Advances in Operator Algebras. Seattle, WA.
 2024 Aug. *Small scale geometry of operator spaces*. Latin American Congress of Mathematicians VII. João Pessoa, Brazil.
 — Jul. *The free holomorphic operator space*. SUMIRFAS. Texas A&M University, TX.
 — Jun. *The free holomorphic operator space*. Methods in Banach spaces conference. University of Extremadura, Spain.
 2023 Oct. *Compactness and Approximation in Operator Spaces*. East Coast Operator Algebra Symposium 2023. Purdue University, West Lafayette, IN.

- Jul. *p-Compact Maps on Operator Spaces*. Concentration Week on Ideals and Algebras of Operators on Banach spaces. Texas A&M University, College Station, TX.
- 2022 Dec. *Uniform homeomorphisms between spheres of unitarily invariant ideals*. Brazilian Workshop in Banach Spaces — Butantã Edition. University of São Paulo, São Paulo, Brazil.
- Jun. *Uniform homeomorphisms between spheres of unitarily invariant ideals*. Functional Analysis in Lille. Université de Lille, Lille, France.
- Jun. *Isoperimetric inequalities for quantum graphs*. 24th Conference of the International Linear Algebra Society. Minisymposium #4: The Mathematics of Quantum Information. Galway, Ireland.
- May *Generalized Mazur maps in a noncommutative setting*. Workshop on Banach spaces and Banach lattices II, Instituto de Ciencias Matemáticas, Madrid, Spain.
- 2021 Sep. *Lipschitz geometry of operator spaces*. Latin American Congress of Mathematicians VI. (Online).
- 2020 Jun. *Asymptotic dimension and coarse embeddings in the quantum setting*. Zagreb Workshop on Operator Theory 2020 (Online).
- 2020 — *Constructing tight unit norm frames for finite-dimensional Banach spaces using group actions*. 2020 Joint Mathematics Meetings, American Mathematical Society and Mathematical Association of America, Special Session on Group Actions in Harmonic Analysis, Denver, CO.
- 2019 Sep. *Ando-Choi-Effros liftings for regular maps between Banach lattices*. Workshop on Banach spaces and Banach lattices, Instituto de Ciencias Matemáticas, Madrid, Spain.
- Jul. *Frame potential for finite-dimensional Banach spaces*. Randomness and Determinism in Compressive Data Acquisition, Texas A&M University, College Station, TX.
- Apr. *Ando-Choi-Effros liftings for regular maps between Banach lattices*. AMS Spring Eastern Sectional Meeting, Special Session on Banach Space Theory and Metric Embeddings. University of Connecticut Hartford, Hartford, CT.
- 2018 Oct. *Frame potential for finite-dimensional Banach spaces*. Virginia Operator Theory and Complex Analysis Meeting (VOTCAM) 2018, University of Richmond, Richmond, VA.
- Aug. *Frame potential for finite-dimensional Banach spaces*. Second Brazilian Workshop in Geometry of Banach Spaces, Ubatuba, Brazil.
- June *Frame potential for finite-dimensional Banach spaces* (main speaker) Geometrical Aspects of Banach Spaces, University of Birmingham, Birmingham, UK.
- June *Isoperimetric and Sobolev inequalities on magnetic graphs*. IV Meeting of Mexican Mathematicians around the world. Casa Matemática Oaxaca, Oaxaca, Mexico.
- May *Frame potential for finite-dimensional Banach spaces*. International Conference on Mathematics and Statistics (ICOMAS) 2018, Special Session on Banach Spaces and Applications. University of Memphis, Memphis, TN.
- Apr. *Isoperimetric and Sobolev inequalities on magnetic graphs*. AMS Spring Southeastern Sectional Meeting, Special Session on Harmonic Analysis, Functional Analysis, and Their Applications. Vanderbilt University, Nashville, TN.
- 2017 Sep. *An Ando-Choi-Effros lifting theorem respecting subspaces*. (Double-length talk) Special Session on Banach Spaces and Applications, 2017 Fall Central Sectional Meeting, American Mathematical Society, University of North Texas, Denton, TX.
- May *Finite unit norm tight frames for Banach spaces via a frame potential*. Special Session on Current Trends in Function Spaces and Nonlinear Analysis, 2017 Spring Eastern Sectional Meeting, American Mathematical Society, Hunter College, New York, NY.
- May *An Ando-Choi-Effros lifting theorem respecting subspaces*. Special Session on Banach Space Theory and Metric Embeddings, 2017 Spring Eastern Sectional Meeting, American Mathematical Society, Hunter College, New York, NY.

- Mar. *Finite unit norm tight frames for Banach spaces via a frame potential*. Special Session on Frames, 2017 Spring Southeastern Sectional Meeting, American Mathematical Society, College of Charleston, Charleston, SC.
- 2014 Oct. *Lipschitz p -convex and q -concave operators*. Conference on Geometric Functional Analysis and its Applications, Université de Franche-Comté, Besançon, France.
- Aug. *Stability of low-rank matrix recovery and its connections to Banach space geometry*. First Brazilian Workshop in Geometry of Banach Spaces, Maresias, Brazil.
- May *Stability of low-rank matrix recovery and its connections to Banach space geometry*. Seventh Conference in Function Spaces, Southern Illinois University Edwardsville, Edwardsville, Illinois.
- Mar. *Stability of low-rank matrix recovery and its connections to Banach space geometry*. 30th Southeastern Analysis Meeting, Clemson University, Clemson, South Carolina.
- Jan. *Lipschitz p -convex and q -concave operators*. Special Session on Banach Spaces, Metric Embeddings, and Applications. 2014 Joint Mathematics Meetings, American Mathematical Society and Mathematical Association of America, Baltimore Conference Center, Baltimore, Maryland.
- 2013 Oct. *Lipschitz factorization through subsets of Hilbert space*. Special Session on Linear and Non-linear Geometry of Banach Spaces 2013 Fall Central Sectional Meeting, American Mathematical Society, Washington University in Saint Louis, Saint Louis, Missouri.
- May *Tensor products of operator spaces and completely p -summing maps*. Lindenstrauss Memorial Conference, The Hebrew University of Jerusalem, Jerusalem, Israel.
- 2012 May *A composition theorem for completely p -summing maps*. ICOMAS 2012, University of Memphis, Memphis, Tennessee.
- 2012 Jan. *“Tensor products” between metric spaces and Banach spaces*. Banach Space Theory Workshop, Banff International Research Station, Banff, Canada.
- 2011 Jan. *Duality for Lipschitz p -summing operators*. Embeddings Workshop, Isaac Newton Institute, Cambridge, United Kingdom.
- 2010 Nov. *Duality for Lipschitz p -summing operators*. Fall Southeastern Sectional Meeting, American Mathematical Society, Special session on Banach spaces, Richmond, Virginia.
- 2007 Aug. *Descriptive set theory and applications to Banach spaces, II* Symposium of FAMAT Graduates, CIMAT, Guanajuato, Mexico.
- 2006 Aug. *Non-classical Banach spaces, I* Symposium of FAMAT Graduates, CIMAT, Guanajuato, Mexico.

Colloquium and Seminar talks

- 2025 Jun. *Duality between Lipschitz functions and Transportation Cost: a quantum version*. Harmonic and Functional Analysis Seminar, Department of Mathematics, University of Buenos Aires, Buenos Aires, Argentina.
- Mar. *Dynamical sampling on Banach spaces*. Analysis Seminar, Department of Mathematics, University of Illinois at Urbana-Champaign.
- Mar. *Tight frames with plenty of symmetries (part 2)*. Frames Seminar, Department of Mathematics, University of Oklahoma.
- Feb. *Tight frames with plenty of symmetries*. Frames Seminar, Department of Mathematics, University of Oklahoma.
- 2024 Oct. *A small taste of dynamical sampling in Banach spaces*. Frames Seminar, Department of Mathematics, University of Oklahoma.
- Oct. *What should a frame for a Banach space be? (part 2)*. Frames Seminar, Department of Mathematics, University of Oklahoma.

- Oct. *What should a frame for a Banach space be?* Frames Seminar, Department of Mathematics, University of Oklahoma.
- Sep. *A gentle introduction to uncertainty principles.* Graduate Student Seminar, Department of Mathematics, University of Oklahoma.
- May *Linearization of holomorphic functions in operator spaces.* Functional Analysis Seminar, Department of Mathematics, University of Buenos Aires, Buenos Aires, Argentina.
- May *Compactness and Approximation in Operator Spaces.* Functional Analysis Seminar, Department of Mathematics, University of Buenos Aires, Buenos Aires, Argentina.
- Mar. *More dynamical sampling: examples and basic results.* Frames Seminar, Department of Mathematics, University of Oklahoma.
- Mar. *More dynamical sampling: examples and basic results (part 2).* Frames Seminar, Department of Mathematics, University of Oklahoma.
- Mar. *More dynamical sampling: examples and basic results.* Frames Seminar, Department of Mathematics, University of Oklahoma.
- 2023 Oct. *Linearization of nonlinear functions.* Analysis Seminar, Department of Mathematics, University of Oklahoma.
- Sep. *From classical to quantum: building a dictionary.* Graduate Student Seminar, Department of Mathematics, University of Oklahoma.
- June *A quick visit to the world of quantum graphs.* Functional Analysis Seminar, Department of Mathematics, University of Buenos Aires, Buenos Aires, Argentina.
- Apr. *Uniform homeomorphisms between spheres of unitarily invariant ideals.* Functional Analysis Seminar, Department of Mathematics, University of Buenos Aires, Buenos Aires, Argentina.
- 2022 Apr. *Generalized Mazur maps in a noncommutative setting.* Operator Theory and Operator Algebras Seminar, University of Virginia. Charlottesville, Virginia.
- 2021 Oct. *A quick visit to the world of quantum graphs.* CQRT Seminar, OU (Online).
- 2020 Oct. *A quick visit to the world of quantum graphs.* Alumni Colloquium, CIMAT/DEMAT, Guanajuato, Mexico (Online)
- Sep. *Asymptotic dimension and coarse embeddings in the quantum setting.* Operator Theory and Operator Algebras Seminar, University of Virginia. (Online)
- Jul. *Completely coarse maps are \mathbb{R} -linear.* Functional Analysis Seminar, University of Buenos Aires. (Online)
- Jul. *Completely coarse maps are \mathbb{R} -linear.* Banach spaces webinar. (Online)
- Jun. *Asymptotic dimension and coarse embeddings in the quantum setting.* Banach Spaces/Noncommutative Geometry Seminar, Texas A&M University. (Online)
- Feb. *Asymptotic dimension and coarse embeddings in the quantum setting.* Analysis Seminar, University of Illinois at Urbana-Champaign. Urbana, IL.
- 2019 May *Isoperimetric and Sobolev inequalities on magnetic graphs.* Analysis and Dynamics Seminar, Department of Mathematics, University of Denver. Denver, Colorado.
- 2017 Oct. *Making instructional videos with minimal technology.* RAMP UP Seminar, Department of Mathematics, University of Oklahoma. Norman, Oklahoma.
- Sep. *Magnetic Sobolev inequalities on graphs.* Analysis and Convexity Seminar, Department of Mathematics, University of Oklahoma. Norman, Oklahoma.
- Sep. *Isoperimetric and Sobolev inequalities on graphs.* Analysis and Convexity Seminar, Department of Mathematics, University of Oklahoma. Norman, Oklahoma.
- Apr. *The Mazur-Ulam theorem and some of its relatives.* Analysis and Convexity Seminar, Department of Mathematics, University of Oklahoma. Norman, Oklahoma.
- Feb. *Stability of low-rank matrix recovery and its connections to Banach space geometry.* Colloquium, Department of Mathematics, Saint Louis University. Saint Louis, Missouri.

- 2016 Jul. *Stability of phase retrieval for measurable frames on infinite-dimensional Hilbert spaces*. Workshop in Analysis and Probability, Texas A&M University.
- Mar. *How Hilbertian are you?* Analysis and Convexity Seminar, Department of Mathematics, University of Oklahoma. Norman, Oklahoma.
- 2015 Oct. *“Tensor products” between metric spaces and Banach spaces* (2 parts). Analysis and Convexity Seminar, Department of Mathematics, University of Oklahoma. Norman, Oklahoma.
- Aug. *Stability of low-rank matrix recovery and its connections to Banach space geometry*. Colloquium, Department of Mathematics, University of North Texas. Denton, Texas.
- Apr. *Lipschitz tensor products*. Analysis Seminar, Department of Mathematical Analysis, University of Granada. Granada, Spain.
- Apr. *Lipschitz tensor products*. Analysis Seminar, Department of Mathematics, University of Almería. Almería, Spain.
- Feb. *Stability of low-rank matrix recovery and its connections to Banach space geometry*. Colloquium, Department of Mathematics, University of Oklahoma. Norman, Oklahoma.
- Jan. *Some notions of transitivity for operator spaces*. Texas A&M Linear Analysis Seminar.
- 2014 Dec. *Stability of low-rank matrix recovery and its connections to Banach space geometry*, Universidad de Cantabria, Santander, Spain.
- Nov. *Lipschitz p -convex and q -concave maps*, Banach Spaces Workshop, Universidad Complutense de Madrid.
- Apr. *Stability of low-rank matrix recovery and its connections to Banach space geometry*, Texas A&M Banach Spaces Seminar.
- 2013 Nov. *Some results on completely p -summing maps*, Analysis Seminar, University of Illinois at Urbana-Champaign.
- Jul. *Tensor products of operator spaces and completely p -summing maps*, Texas A&M Workshop in Analysis and Probability.
- 2011 Oct. *“Tensor products” between metric spaces and Banach spaces*, MSRI.
- 2010 Dec. *Ribe’s program: a morphic point of view*, Texas A&M Banach Spaces seminar.
- Mar. *Lipschitz (q, p) -mixing operators*, Texas A&M Linear Analysis Seminar.
- 2009 Dec. *Duality for Lipschitz p -summing operators*, Texas A&M Banach Spaces Seminar.
- Sep. *Markov p -convexity (2 parts)*, Texas A&M Banach Spaces Seminar.
- Apr. *Embeddings of metric spaces into normed spaces and applications*, Texas A&M Graduate Student Organization Seminar.

PhD advisees

2024–Now Jeremiah Isu

Postdoctoral advisees

2021–2022 Harrison Gaebler
 2018–2020 Andrew Swift

Undergraduate research advisees

2020–2021 Aidan Powers
 2020 Ryan Chimienti
 2017–2020 Sawyer Robertson

Courses taught

At the University of Oklahoma

- 2025 Spring MATH 4433: Introduction to Analysis I.
MATH 4803/5803: The Mathematics of Data (Multi-instructor class; 1/3 taught).
- 2024 Fall MATH 1823: Calculus and Analytic Geometry I.
- 2024 Spring MATH 3413: Physical Mathematics I.
MATH 4443: Introduction to Analysis II.
- 2023 Fall MATH 3413: Physical Mathematics I.
MATH 4433: Introduction to Analysis I.
- 2022 Fall MATH 4463: Introduction to Partial Differential Equations.
MATH 6473: Functional Analysis I
- 2022 Spring MATH 3413: Physical Mathematics I.
MATH 4443: Introduction to Analysis II.
MATH 4513/4803: The Mathematics of Data, a Presidential Dream Course (Multi-instructor class; 1/3 taught).
- 2021 Fall MATH 3423: Physical Mathematics II.
MATH 4433: Introduction to Analysis I.
- 2021 Spring MATH 4433: Introduction to Analysis I.
MATH 5463: Real Analysis II.
- 2020 Fall MATH 2433: Calculus and Analytic Geometry III.
MATH 5453: Real Analysis I.
- 2020 Spring MATH 4433: Introduction to Analysis I.
MATH 6493: Topics in Analysis (Multi-instructor class; 1/3 taught).
- 2019 Fall MATH 3113: Introduction to Ordinary Differential Equations.
- 2019 Spring MATH 3113: Introduction to Ordinary Differential Equations.
MATH 3413: Physical Mathematics I.
- 2018 Fall MATH 1914: Differential and Integral Calculus I (Honors)
MATH 4463: Introduction to Partial Differential Equations.
- 2018 Spring MATH 4433: Introduction to Analysis I.
MATH 5463: Real Analysis II.
- 2017 Fall MATH 3413: Physical Mathematics I.
MATH 5453: Real Analysis I.
- 2017 Spring MATH 4103: Introduction to Functions of a Complex Variable.
MATH 4443: Introduction to Analysis II.
- 2016 Fall MATH 4463: Introduction to Partial Differential Equations.
MATH 4433: Introduction to Analysis I.
- 2016 Spring MATH 3113: Introduction to Ordinary Differential Equations.
MATH 4433: Introduction to Analysis I.
- 2015 Fall MATH 3113: Introduction to Ordinary Differential Equations (2 sections).

At the University of Texas at Austin

- 2014 Spring M362K: Probability I (2 sections).
2013 Fall M408S: Integral Calculus for Science.
2013 Spring M427K: Differential Equations.
2012 Fall M408D: Engineering Calculus II (2 sections).

At Texas A&M University

- 2011 Spring MATH 142: Business Mathematics II (Instructor of record).
2008 Fall MATH 152: Engineering Calculus II (Teaching Assistant).

2008 Spring MATH 151: Engineering Calculus I (Teaching Assistant).

2007 Fall MATH 151: Engineering Calculus I (Teaching Assistant).

At CIMAT (Guanajuato, Mexico)

2006 Spring Real Analysis II (Instructor of record; graduate course).

At the National Autonomous University of Mexico

2004 Fall Real Analysis (Teaching assistant; undergraduate course at the 400 level).

Refereeing and reviewing

Referee for: Journal of Functional Analysis, Israel Journal of Mathematics, Journal of Mathematical Analysis and Applications, Topology and its Applications, Proceedings of the 7th Conference on Function Spaces, Proceedings of the American Mathematical Society, Geometry & Topology, Mathematische Nachrichten, Colloquium Mathematicum, Annals of Functional Analysis. Revista Matemática Complutense, Studia Mathematica, Canadian Journal of Mathematics, Canadian Mathematical Bulletin, Monatshefte für Mathematik, Positivity, Advances in Operator Theory, Bulletin of the London Mathematical Society, International Mathematics Research Notices, Mediterranean Journal of Mathematics, Analysis Mathematica.

Reviewer for Mathematical Reviews.

Panel member at the National Science Foundation in 2017 and 2019.

Service

2025 Sep Co-organizer of a Special Session on “Banach Space Theory and Applications in Related Topics” at the First Brazil–Mexico Joint Mathematical Meeting. Fortaleza, Brazil, September 8–12 2025.

2025 July Co-organizer of a Special Session on “Nonlinear Analysis on Banach Spaces” at the 2025 Mathematical Congress of the Americas. Miami, July 21–25 2025.

2025 May Co-organizer of the Workshop “Geometric Nonlinear Functional Analysis” at the Casa Matemática Oaxaca (CMO) location of the Banff International Research Station (BIRS). Oaxaca, Mexico, May 5–9 2025.

2024–Now Member of the Editorial Advisory Board for the journal *Concrete Operators*.

2021 May Gave a presentation about being a mathematician to 4 classes of 8th graders in Oklahoma City. The population of the school is predominantly hispanic, and one of the presentations was given in Spanish for a class of English as a Second Language Learners.

2020 Jan. Judge for the MAA Undergraduate Student Poster Session at the 2020 Joint Mathematics Meetings.

July 2019 – Present Associate Editor for the AMC 8 (American Mathematics Competition) organized by the Mathematical Association of America.

2016 – Now Co-organizer of the OU Math department’s Putnam Problem Solving Seminar.

2016 – 2022 Co-organizer of the OU Math department’s Problem of the Month contest.

2016 – 2019 Abstract reviewer for the student presentation proposals for the National Conference of the Society for the Advancement of Chicanos and Native Americans in Science.

2015 Jun. Abstract reviewer for the student presentation proposals for the National Conference of the Society for the Advancement of Chicanos and Native Americans in Science.

2014 Apr. Abstract reviewer for the student presentation proposals for the National Conference of the Society for the Advancement of Chicanos and Native Americans in Science.

2013 Oct. Judge for the poster competition of the National Conference of the Society for the Advancement of Chicanos and Native Americans in Science.

- 2010 – 2011 Seminar organizer for the Workshop in Analysis and Probability. Texas A&M Univ.
- 2007 Aug. Organizing Committee: II Symposium of FAMAT Graduates, Guanajuato, Mexico.
- 2003 Nov. Local Organizing Committee Co-Chair: XVII Mexican Mathematical Olympiad.
- 2000 – 2004 Organizing Committee member, Guanajuato State Mathematical Olympiad.