Li-An Daniel Wang

Sam Houston State University

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Academic Position	**Assistant Professor of Mathematics** September 2015 to present: Department of Mathematics and Statistics, Sam Houston State University, Huntsville, TX **Harold L. Dorwart Visiting Assistant Professor of Mathematics** July 2012 – June 2015: Department of Mathematics, Trinity College, Hartford CT **Graduate Teaching Fellow** Sept. 2005 – June 2012: Department of Mathematics, University of Oregon, Eugene OR
Education	**Ph.D. in Mathematics**, University of Oregon, June 2012 Advisor: Professor Marcin Bownik Dissertation: Multiplier Theorems on Anisotropic Hardy Spaces **M.S. in Mathematics**, University of Oregon, June 2010 **B.S. in Mathematics**, University of British Columbia, May 2005
Research Interests	Harmonic and Fourier Analysis: anisotropic Hardy spaces and variable Hardy spaces, weighted variable Lebesgue spaces, Fourier analysis

Publications

1. **Fourier Transform of Anisotropic Hardy Spaces**, with Marcin Bownik
   Proceedings of the AMS, **141** (2013), pp. 2299-2308

2. **Variable Hardy Spaces**, with David Cruz-Uribe
   Indiana University Mathematics Journal, **63** (2014), pp. 447-493

3. **Extrapolation on Weighted Variable Lebesgue Spaces**, with David Cruz-Uribe
   Transactions of the AMS, **369**, Number 2, pp. 1205-1235

4. **A Multiplier Theorem on Anisotropic Hardy Spaces**,
   Canadian Mathematical Bulletin, to appear:
   `http://dx.doi.org/10.4153/CMB-2017-029-0`, 11 pages

In Preparation

1. **Factorization and structural properties of variable Muckenhoupt weights**, with David Cruz-Uribe, in preparation

2. **Anisotropic Hardy Spaces and Parabolic Differential Operators**, with Marcin Bownik, in preparation

Organizing Duties

Facilitating Whole-Class Discussion and Group Work
MAA Project NExT panel, Joint Mathematical Meetings 2014
Putnam Problem Seminar
Trinity College, 2012-2013.
Gradaute Committee
Curriculum Committee
Faculty Hiring Committee
Sam Houston State University, 2015-present.

Teaching Experience: SHSU

These are the courses I have taught, or will teach, at Sam Houston State University, since my position as a tenure-track assistant professor of mathematics started in the fall of 2015.

Business Algebra *Math 1324* Spring 2016 Topics include a review of introductory algebra, equations, relations, functions, graphs, linear programming, systems of equations and matrices, and mathematics of finance

College Mathematics *Math 1332* Fall 2015
This course is designed to meet the objectives of component Area 2 of the core curriculum for non-business and non-science related majors. Topics may include sets, counting principles, probability, logic, linear algebra, linear programming, mathematics of finance, geometry, and calculus. Applications are emphasized.

Calculus III *Math 2440* Fall 2016
This course includes the study of the calculus of functions of several variables and topics in vector calculus including line and surface integrals, Green's Theorem, Divergence Theorem, and Stoke's Theorem.

Differential Equation *Math 3376*
This course, is intended to develop a basic competence in areas of mathematics that are used in solving problems from the physical sciences. This first course emphasizes the general solution of ordinary differential equations, including the Laplace transform and infinite series methods.

Introductory Analysis I *Math 4361* Fall 2015
This course consists of a more thorough treatment of the material traditionally considered in elementary calculus. Topics include sets, functions, properties of the real number system and sequences. Writing enhanced.

Elementary Analysis *Math 4366* Spring 2016
Topics include limits, continuity, differentiation, Riemann integration, infinite series and sequences and series of functions. Writing enhanced.

Fourier Analysis *Math 5776* Fall 2017
Topics in harmonic analysis, including Hilbert Spaces, Hardy-Littlewood maximal operator, L^p-space theory, and abstract integration

Foundations of Analysis I *Math 6333* Fall 2016
This course is the first half of the analysis sequence. The analysis sequence includes topics from advanced multivariate calculus, normed linear spaces, measure theory, including Lebesgue and Borel measures, measurable functions, Lebesgue integration, and spaces of integrable functions.

Foundations of Analysis II *Math 6334*
This course is the second half of the analysis sequence. The analysis sequence includes topics from advanced multivariate calculus, normed linear spaces, measure theory, including Lebesgue and Borel measures, measurable functions, Lebesgue integration, and spaces of integrable functions.

Teaching Experience: Trinity

I taught the following courses at Trinity University, from the fall of 2012 to the spring of 2015, as the Harold L. Dorwart visiting assistant professor of mathematics.

Calculus I *Math 131* Fall 2012.
Standard sequence of differential calculus and applications, and introduction to integration, for mathematics and physical science majors.

Statistical Data Analysis *Math 207* Fall 2012, Winter 2013.
Exploratory data analysis and graphical methods; random variables, statistical distributions, and linear models; classical, robust, and nonparametric methods for estimation and hypothesis testing; analysis of variance and introduction to modern multivariate methods.

Special Topics in Analysis *Math 325* Winter 2013.
Introduction to mathematical proofs: sets, basic logic, inequalities, induction, quantifiers, and ϵ-M arguments regarding sequences and series.

Calculus I *Math 131* Fall 2012, Fall 2013, Fall 2014
Differential Calculus, with emphasis on applications, modeling, and differential equations.

1. Fall 2012: The course was based on Single Variable Calculus by J. Stewart. Topics include limits, continuity, differentiability, implicit differentiation and related rates, applications of the derivative, and the Fundamental Theorem of Calculus.

2. Fall 2013: The course was based on Calculus: Modeling and Application, 2nd Edition; by David Smith and Lawrence Moore. We emphasized modeling and differential equations early and often throughout the course, facilitated by technology applets embedded into the (on line) text.

3. Fall 2013, Fall 2014: Calculus I Workshop - This is an optional workshop associated with Calculus 131. Each weekly workshop is based on a detailed set of worksheets which students work through collaborating in groups, and are encouraged to discuss mathematics and work with each other. Workshop problems are based on the material covered in lecture, but are also designed to stretch each student's abilities to the fullest extent.

Calculus II *Math 132* Spring 2014
Integral calculus, with emphasis on applications, modeling, and differential equations. Topics include integration, applications in physics, probability, differential equations, Taylor approximations, and series convergence, continuing the themes in the textbook Calculus: Modeling and Application, 2nd Edition.

Argument and Abstraction *Math 205* Fall 2013
Proof and the nature of mathematical argument and abstraction, and the roles of definition, example, and counterexample, as well as mathematical argument by induction, deduction, construction, and contradiction. Topics include sets, functions, cardinality, equivalence relations, and statements involving nested quantifiers to prepare students for abstract algebra and real analysis.

Statistical Data Analysis *Math 207* Fall 2012, Spring 2013, Fall 2014
Exploratory data analysis and graphical methods; random variables, statistical distributions, and linear models; classical, robust, and nonparametric methods for estimation and hypothesis testing; analysis of variance and introduction to modern multivariate methods. Along with a traditional textbook, we start the course with Investigating Statistical Concepts, Applications, and Methods, second edition, by Beth Chance and Allan Rossman, that uses applets in visualizing the binomial distribution, p-value, power, and Type I and II errors.

Teaching Experience: Trinity Continued

Special Topics in Analysis II *Math 325* Spring, 2014
Professor Cruz-Uribe and I designed this course, serving as a continuation course for students that have taken analysis. Possible topics are series convergence of functions, special functions, Hilbert spaces, and measure theory, all in the context of the real line.

Analysis I *Math 331* Fall 2014
Properties of the real number system, elementary number system, elementary topology, limits, continuity, uniform convergence, differentiation and integration of real-valued functions, sequences, and series of functions. Writing intensive.

Analysis II *Math 332* Spring 2015
Further topics in analysis, including integration theory, metric spaces, functional analysis. Writing intensive.

Teaching Experience: Oregon

I taught the following courses at the University of Oregon from the fall of 2005 to the spring of 2012, as a graduate teaching fellow.

University Math *Math 107* Summer 2008.
Tiling and symmetry, modular arithmetic, voting methods, fair division, apportionment, and graph theory.

College Algebra *Math 111* Fall 2005, Winter, Spring, Summer 2006, Fall 2007.
Algebra needed for calculus, covering algebra and graphs of functions, including polynomial, rational, exponential, and logarithmic functions.

Elementary Functions *Math 112* Spring 2007.
Algebra needed for calculus, covering complex numbers, exponential, logarithmic, and trigonometric functions.

Fundamentals of Elementary Mathematics *Math 212* Summer 2011.
Structure of number systems, logical thinking, simple functions, basic statistics, probability, and counting arguments for education majors preparing to teach K-8.

Business Calculus II *Math 242* Summer 2007, Summer 2009.
Integral calculus, linear programming problems, multi-variable differential calculus, with emphasis on business application problems.

Biology Calculus I *Math 246* Fall 2009, Fall 2010, Winter 2011.
Differential calculus with applications on biological systems, population models, and stability, for students in biology and life sciences.

Biology Calculus II *Math 247* Spring 2010, Spring 2011.
Integral calculus with emphasis on population models, differential equations, and stability, for students in biology and life sciences.

Calculus I *Math 251* Winter 2007, Fall 2008.
Standard sequence of differential calculus and applications, for mathematics and physical science majors.

Calculus II *Math 252* Winter 2008, Winter 2009, Spring 2010.
Standard sequence of integral calculus and applications, including an introduction to improper integrals, for math and physical science majors.

Calculus III *Math 253* Fall 2011.
Basic logic, parametric equations, surface area, improper integrals, sequences, series, and Taylor series, for math and physical science majors.

Elementary Analysis *Math 315* Spring 2009.
Basic logic, induction, the real numbers and field axioms, ϵ-N arguments, infimums and supremums, limits, sequences, series, ratio test, root test, comparison test, and continuity of functions, for math majors.

Referee Duties	Annales Academiae Scientiarum Fennicae Mathematica
	Canandian Journal of Mathematics
	Journal of Fourier Analysis and Applications
	Proceedings of the Edinburgh Mathematical Society
	Rendiconti del Circolo Matematico di Palermo
	The College Mathematics Journal
	Transactions of the AMS

Memberships

MAA Project NExT Fellow Brown 13 (2013-2014)

Mathematical Association of America

American Mathematical Society

Expository Presentations

IBL for 1st-Year and 2nd-Year Courses, Joint Meetings, San Antonio, TX, 2015
Title: Modified Moore method in inroduction to proofs

Undergraduate Math Seminar, Wheaton College, MA, Oct. 2013
Title: A gentle introduction to Fourier analysis

Mill Lecture Series, Trinity College, CT, March 2013
Title: Intuition versus mathematics

Trinity College Seminar, Trinity College, CT, March 2012
Title: Multiplying functions "properly"

University of Oregon Undergraduate Seminar, University of Oregon, Feb. 2009
Title: Duality between linear functionals and functions,

TRIUMF Undergraduate Summer Talks, University of British Columbia, July 2002
Title: TUDA and astrophysics

Research Presentations

Oregon Analysis Seminar, Eugene, OR, May 2016
Title: Variable function spaces in harmonic analysis

Ohio River Analysis Meeting, Lexington, KY, March 2016
Title: Structure of variable A_p weights

New Mexico Analysis Seminar, Albuquerque, NM, Feb 2016
Title: Structure of variable A_p weights

SUNY Albany Analysis Seminar, Albany, NY, Nov 2014
Title: Variable Hardy spaces and extrapolation

Wesleyan University, Middletown, CT, Nov. 2014
Title: Variable Hardy spaces and extrapolation

AMS Fall Eastern Section Meeting Halifax, Nova Scotia, Oct. 2014
Special Session on Advances in Harmonic Analysis and Partial Differential Equations
Title: A general approach to weighted extrapolation

AMS Spring Western Section Meeting, Albuquerque, NM, April 2014
Special Session on Weighted Norm Inequalities and Related Topics
Title: Weighted extrapolation in variable Lebesgue spaces

Brown Analysis Seminar, Brown University, RI, Feb. 2013
Title: Variable Hardy spaces

Weighted Estimates for Singular Integrals, Lake Arrowhead, CA, Oct. 2010
Title: Multiparameter operators and sharp weighted inequalities, after R. Fefferman and
J. Pipher

AMS Spring Western Section Meeting, Albuquerque, NM, April 2010
Special Session on Dyadic and Non-dyadic Harmonic Analysis
Title: A multiplier theorem on anisotropic Hardy spaces

Analysis Seminars and Workshops	**Ohio River Analysis Meeting** Lexington, Kentucky; March 2016

Ohio River Analysis Meeting
Lexington, Kentucky; March 2016

New Mexico Analysis Seminar
Albuquerque, New Mexico; 2009, 2014, 2016

PCMI Summer School in Geometric Analysis: Undergraduate Faculty Program
Park City Math Institute, Park City, Utah; June 30 - July 20, 2013

Research Term on Real Harmonic Analysis and Applications to PDE
Instituto de Ciencias Matematicas, Madrid, Spain; May 21 - 30, 2013

Summer/Fall School on Weighted Estimates for Singular Integrals
Lake Arrowhead, LA; October 3 - October 8, 2010

PCMI Summer School in Image Processing: Graduate Program
Park City Math Institute, Park City, Utah; June 27 - July 17, 2010

Twelfth New Mexico Analysis Seminar
Albuquerque, New Mexico; April 2009

Function Spaces and Their Operators: A Conference in Honor of Richard Rochberg on the Occasion of his 65th Birthday
St. Louis, Missouri; May 2008

Technology   LaTeX, HTML, Blackboard, Moodle, Mathematica, Sage, Webassign, Webwork

References

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