Leslaw Skrzypek

Curriculum Vitae

Office Address:

Department of Mathematics and Statistics

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Education:

- Ph.D. in Mathematics (with honors), 2001. Jagiellonian University, Krakow, Poland.
- M.S. in Mathematics (with honors), 1998. Jagiellonian University, Krakow, Poland.

Appointments:

- **Professor,** University of South Florida, 2024-current.
- **Associate Professor (tenured)**, University of South Florida, 2010-2024.
- **Assistant Professor**, University of South Florida, 2005-2010.
- **Visiting Assistant Professor**, University of South Florida, 2003-2005.
- **Assistant Professor,** Jagiellonian University, 2002-2003.

Administrative Appointments:

- **Chair**, Department of Mathematics and Statistics, University of South Florida, 2014-2022.
- **Associate Chair**, Department of Mathematics and Statistics, University of South Florida, 2009-2014.

Research Appointments:

- **NATO Advanced Fellowship** (Post Doc), University of California, Riverside, 2003.
- **Fulbright Award**, University of California, Riverside, 2000-2001.

Director of CAS Complex Data Center (Department of Mathematics and Statistics, University of South Florida), 2014-current.

Research Interest:

- **Minimal Projections and Lp Spaces**
- Banach spaces
- Neural Networks
- Mathematics Education
- Approximation Theory
- Real and Complex Analysis

Awards:

- **NATO Advanced Fellowship**, 2003
- **Fulbright Award**, 2000-2001
- **Polish Academy of Science Scholarship** for mathematicians working at Ph.D. Thesis (1999-2000)
- **M. Lysek's Award** for the best young mathematician from Jagiellonian University (2000)
- **F. Leja's Award** for talented young mathematicians from Jagiellonian University (1999).
- **Prize of the Head** of the Department of Mathematics (1999).

- **Prize of the President of the Royal City of Krakow** (1998) (for conducting a problem-solving course for the gifted High School students).
- **Scholarship of the Ministry of National Education** (1995, 1996, 1997).

USF Wide Committees:

- College of Arts and Science SNSM T&P committee (2024-)
- Faculty Success Initiative: Finances, Infrastructure & Analysis Faculty Advisory Panel, [Member, 2021-2022].
- Steering Committee for USF Council of Chairs, [Member, 2015-2022].
- Learning Assistant (LA) workgroup (2019). The work group presented the findings and recommendations to VP for Student Success. [Member, 2019]
- RCM Advisory Committee, [Member, 2016-2017].
- Retention Performance Management Task Force and, Gardner Institute Retreat, [Member 2016].
- Academic Affairs Sub-Committee for Smart Lab implementation, [Member 2014-2016].

Statewide Committees:

- **Florida College System to University Alignment workgroup**. I participated in "Huddle 2: Course Alignment". Over the Spring 2019 we met several times online and worked in a small group to provide our policy and practice recommendations. Our recommendations became part of the publication: "Mathematics Re-design: A vision for Florida's Future (2019). Tallahassee, FL. Florida Student Success Center".
    - Florida Mathematics Workgroup Meeting, February 14, 2019, Polk State College, Lakeland FL
    - Florida Mathematics Re-Design Institute, June 27, 2019, UF, Gainesville FL.
- **SUS (State University System) Mathematics Action Planning Initiative**.
    - Mathematics Summit (UCF, October 20, 2017).
    - Mathematics Reform Symposium (UCF, May 7, 2018).
- **Project: Get Ready**, an initiative organized by the Florida Department of Education and Achieve and the American Diploma Project to improve students' readiness for college, and to improve their transition into and through post-secondary education towards a degree. [Faculty Committee Member (MGF 1107), 2008-2009]

Publications (Mathematics):

29. T. Kobos. L. Skrzypek, B. Shekhtman, Minimal Versus Generalized Minimal Projections. Preprint.
28. T. McKinley, B. Shekhtman, L. Skrzypek, B. Tuesink, Polynomial Interpolation on Arbitrary Varieties, **Pure and Applied Functional Analysis (2024)** Accepted.
27. G. Lewicki, L. Skrzypek, On the maximal hyperplane in l_p^n. **Journal of Mathematical Analysis and Application**s (2024) 538 (2), 128438. https://doi.org/10.1016/j.jmaa.2024.128438
26. B. Shekhtman, L. Skrzypek, On alternating functions in subspaces of C[0,1]. **Signal Processing and Data Analysis** (2024) Accepted.
25. B. Shekhtman, L. Skrzypek, B. Tuesink, On primary decomposition of Hermite projectors, **Symmetry** (2023), (15) 9, 1658**,** 1-11.

24. C. Phan, L. Skrzypek and Y. You. Dynamics and Synchronization of Complex Neural Networks with Boundary Coupling. **Analysis and Mathematical Physics** (2022) 12:33, 1-18.
23. C. Phan, L. Skrzypek and Y. You. Exponential Synchronization of 2D Cellular Neural Networks with Boundary Feedback. **Stochastic Analysis and Applications** (2023) 1-16. doi: 10.1080/07362994.2023.2260871
22. L. Skrzypek and Y. You. Feedback Synchronization of FHN Cellular Neural Networks. **Discrete and Continuous Dynamical Systems Series B** (2021) Volume 26, Issue 12, 6047-6056.
21. L. Skrzypek and Y. You. Dynamics and Synchronization of Boundary Coupled Fitz-Hugh-Nagumo Neural Networks. **Applied Mathematics and Computation** (2021). Vol. 388, 1-13.
20. V. Mudunuru and L. Skrzypek, A Comparison of Artificial Neural Network and Decision Trees with Logistic Regression as Classification Models for Breast Cancer Survival. **International Journal of Mathematical, Engineering and Management Sciences** Vol. 5, No. 6 (2020), 1170-1190.
19 B. Deregowska, S. Foucart, B. Lewandowska and L. Skrzypek, On the Norms and Minimal Properties of de la Vallee Poussin's type Operators, **Monatshefte fur Mathematik** 185 (2018), no. 4, 601-619.
18. S. Foucart and L. Skrzypek, On maximal relative projection constants. **Journal of Mathematical Analysis and Applications** 447 (2017), no. 1, 309-328.
17. G. Lewicki and L. Skrzypek, Minimal projections onto hyperplanes in l_p^n . **J. Approx. Theory** 202 (2016), 42-63.
16. B. Shekhtman and L. Skrzypek, On a Characterization of Hilbert Spaces through Minimality of Orthogonal Projections and Related Topics. J. Concr. Appl. Math. 13 (2015), no. 3-4, 322-329.
15. B. Shekhtman and L. Skrzypek, Minimal versus orthogonal projections onto hyperplanes in l_1^n and l_∞^n. **Approximation Theory XIV: San Antonio 2013**, Springer Proceedings in Mathematics & Statistics Volume 83 (2014), 343-349.
14. L. Skrzypek, Chalmers-Metcalf operator and uniqueness of minimal projections in l_∞^n and l_1^n spaces. **Approximation Theory XIII: San Antonio 2010** (M. Neamtu and L. Schumaker (eds.)), Springer Proceedings in Mathematics Volume 13 (2012), 331-344.
13. B. Shekhtman and L. Skrzypek, On the uniqueness of the Fourier projection in L_p spaces. J. Concr. Appl. Math. 8 (2010), no. 3, 439-447.
12. L. Skrzypek, On the Non-Uniqueness of Minimal Projections in l_1 and Discrete Walsh Projections. **Nonlinear Analysis** 71 (2009), no. 12, e2431-e2436.
11. L. Skrzypek, On the L_p norm of the Rademacher projection and related inequalities. **Proceedings of the AMS** 137 (2009), 2661-2669.
10. B. Shekhtman and L. Skrzypek, On the non-uniqueness of minimal projection in L_p spaces. **J. Approx. Theory** 161 (2009), no. 1, 23-34.
9. G. Lewicki and L. Skrzypek, Chalmers-Metcalf Operator and Uniqueness of Minimal Projections, **J. Approx. Theory**, 148 (2007), 71-91.
8. G. Lewicki and L. Skrzypek, On the properties of Chalmers-Metcalf operator, **Banach Spaces and their Applications in Analysis** (Ed. by Randrianantoanina, Beata and Randrianantoanina, Narcisse), 375-390, de Gruyter (2007).
7. B. Shekhtman and L. Skrzypek, Geometric aspects of minimal projections onto planes, **Constructive Theory of Functions, Varna 2005** (B. Bojanov Ed.), 267-277, Marin Drinov Academic Publishing House, Sofia (2006).
6. B. Shekhtman and L. Skrzypek, Norming Points and Unique Minimality of Orthogonal Projections, **Abstract and Applied Analysis** (2006), Art. ID 42305, 1-17.

5. B. Shekhtman and L. Skrzypek, Uniqueness of Minimal Projections onto Two-Dimensional Subspaces, **Studia Mathematica**, 168 (2005), 273-284.
4. L. Skrzypek, Minimal Projections in Spaces of Functions of N Variables, **J. Approx. Theory**, 123 (2003), 214-231.
3. L. Skrzypek, Uniqueness of Minimal Projections in Smooth Matrix Spaces, **J. Approx. Theory**, 107 (2000), 315-336.
2. L. Skrzypek, On the Uniqueness of Norm-One Projection in James-type Spaces Generated by Order Preserving Norms, **East Journal On Approximations**, 6 (2000), 1-31.
1. L. Skrzypek, The Uniqueness of Norm-One Projection in James-type Spaces**, J. Approx. Theory**, 100 (1999), 73-93

Publications (Mathematics Education):

3. R. Sears, F. Hopf, A. Torres-Ayala, W. Casey, L. Skrzypek, Using Plan-Do-Study-Act (PDSA) Cycles and Interdisciplinary Conversations to Transform College Algebra, **PRIMUS (Problems, Resources, and Issues in Mathematics Undergraduate Studies**) Volume 29, Issue 8 (2019), 881-902.
2. R. Sears, F. Hopf, K. Butler, L. Skrzypek, Transforming Secondary Mathematics Curriculum to Promote Interdisciplinary STEM Concepts, (2017), Conference **Proceedings of the 15th Annual Hawaii International Conference on Education**.
1. Keene, Skrzypek, Downling, Kott "Bringing Evidenced-Based Practices to a Large-Scale Precalculus Class: Preliminary Results", **XX Annual Conference on Research on Undergraduate Mathematics Education (RUME 2017**), February 23-25, 2017, San Diego, CA.

Textbooks:

6. J.S. Ratti, M. McWaters, L. Skrzypek with J. Bernards and W. Fresh, Precalculus: A Right Triangle Approach, 5th edition, Pearson (2022), 1051 pages.
5. J.S. Ratti, M. McWaters, L. Skrzypek with J. Bernards and W. Fresh, Precalculus: A Unit Circle Approach, 4th Edition, Pearson (2022), 1043 pages.
4. J.S. Ratti, M. McWaters and L. Skrzypek, College Algebra, 4th edition, Pearson (2018), 888 pages.
3. J.S. Ratti, M. McWaters and L. Skrzypek, College Algebra and Trigonometry, 4th edition, Pearson (2018), 1184 pages.
2. J.S. Ratti, M. McWaters and L. Skrzypek, Precalculus: A Right Triangle Approach, 4th edition, Pearson (2018), 1184 pages.
1. J.S. Ratti, M. McWaters and L. Skrzypek, Precalculus: A Unit Circle Approach, 3rd Edition, Pearson (2017), 1104 pages.

Grants (Received and/or participated in):

- NSF IUSE Grant, Transformation of Evidence-Based Education Reform (STEER) (DUE 1525574), **$3M. Role: Writing Proposal Team Member and STEER TILT leadership group member: 2015-2019.** Duties included bi-weekly meetings. Spearheaded: 2016 STEER SPEAKER SERIES: Dr. Keith Weber “Reasons Why Students Do Not Learn STEM Practices from Their Lectures” on April 1, 2016 and Dr. Chris Rasmussen “Findings from a National Study of Calculus Programs” on April 8, 2016. Departmental Retreat on April 29, 2016 (Focus: Improving Calculus courses).
- NSF WIDER grant “Transforming STEM Teaching in a Large Urban-Serving University” (DUE

1347753). **$250k**, 2014-15. **Role: PIanning Team Member.**

- **USF One to One Matching Grant.** *"Computational Lab in CMC 303".* **$45k. 2015. Role: PI.**
- USF iTOPP grant "Generating 3D images/examples for use in Calculus III classes" (2010-2011). **Role: PI.**
- KBN (Polish State Committee for Scientific Research) Grant no. 1 P03A 010 26. Minimal Projections in Banach Spaces. Co-PI.
- KBN (Polish State Committee for Scientific Research) Grant no. 2 P03A 015 18. Minimal Projections in Banach Spaces. Co-PI.

Plenary Talks:

- **Function Spaces XII** International Conference, July 9-14, 2018, Krakow, Poland. Plenary talk: *On the maximal (and almost maximal) relative projection constants and related topics* (45 minutes).
- **Geometry of Banach Spaces and Related Topics** International Conference, June 8-10, 2017, Krakow. Poland. Plenary talk: *On the Maximal (and almost Maximal) Relative Projection Constants* (60 minutes).

Graduate students' major professor:

- R. Warner, USF, Mathematics, 2015, M.A. thesis: "*Radial Versus Orthogonal and Minimal Projections onto Hyperplanes in l_3^4"*.
- V. Mudunuru, USF, Statistics, 2016, Ph.D. thesis: *"Modeling and Survival Analysis of Breast Cancer: A Statistical, Artificial Neural Network, and Decision Tree Approach".*

Mentor (Post-Docs with extended visits to USF):

- Barabara Lewandowska, Jagiellonian University, Poland. 2014.
- Barbara Deregowska, Jagiellonian University, Poland. 2014.

Ph.D./M.A. committees:

H. Celebi (USF, Engineering, 2008), A. Abdeljabbar (USF, Mathematics, 2012), I. Teodorescu (USF, Statistics, 2013), Yuan Zhou (USF, Mathematics, 2017), Xiang Gu (USF, Mathematics, 2018), Emmanuel Appiah (USF, Mathematics, 2018), Wael Al-Sawai (USF, Mathematics, 2018), Chi Phan (USF, Mathematics, 2020),

Conferences Attended:

- International Conference on Approximation Theory and Beyond, (May 15-18, 2023, Vanderbilt University, Nashville, TN). Talk: "Minimal Versus Generalized Minimal Projections"
- 16th International Conference on Approximation Theory (May 19–22, 2019, Vanderbilt University, Nashville, TN). https://my.vanderbilt.edu/at16/
- Function Spaces XII International Conference, July 9-14, 2018, Krakow, Poland. Plenary talk: On the maximal (and almost maximal) relative projection constants and related topics (45 minutes). https://fs12.up.krakow.pl/
- Geometry of Banach Spaces and Related Topics International Conference, June 8-10, 2017, Krakow. Poland. Plenary talk: On the Maximal (and almost Maximal) Relative Projection Constants (60 minutes).
- 15th International Conference in Approximation Theory (Menger Hotel, San Antonio, TX May 22 - 25, 2016) https://math.vanderbilt.edu/schumake/AT15/
- 5th International Conference on Pattern Recognition Applications and Methods, ICPRAM, February 24 - 26, 2016, Rome, Italy
- 14th International Conference in Approximation Theory (San Antonio, TX). April 7-10, 2013. Talk:

"Maximal Hyperplanes of lp with respect to Relative Projection Constant". http://www.math.vanderbilt.edu/~at14/

- International Conference on Mathematics and Statistics (ICOMAS 2012). Memphis TN, May 15-18, 2012. http://www.msci.memphis.edu/ICOMAS2012/
- 13th International Conference in Approximation Theory (San Antonio, TX). March 7–10, 2010. Talk: "Fourier and Rademacher Projections in Lp Spaces". http://www.math.vanderbilt.edu/~at13/
- SEAM XXV 25th Southeastern Analysis Meeting (March 20-22, 2009, Tampa FL). http://www.cas.usf.edu/seam/
- International Conference on Applied Mathematics and Approximation Theory (October 11-13, 2008 Memphis, TN). http://www.msci.memphis.edu/AMAT2008/
- Fifth World Congress of Nonlinear Analysts 2008 (July 2-9, Orlando, FL) http://research.fit.edu/ifna/wcna2008/
- International Conference on Interdisciplinary Mathematical & Statistical Techniques IMST 2008 (May 15-18, 2008 Memphis TN). http://www.msci.memphis.edu/IMST2008-FIMXVI/
- Twelfth International Conference on Approximation Theory (March 4-8, 2007, San Antonio TX). http://www.math.vanderbilt.edu/~at07/
- Banach Spaces and their Applications in Analysis (May 22-27,2006, Oxford OH). http://www.users.muohio.edu/randrib/bsaa2006.html
- 1015 AMS Meeting (April 1-2,2006, Miami FL)
- Advances in Constructive Approximation (May 14-17,2003, Nashville TN, USA) – short talk in memory of Professor William Light.
- Conference of Functional Analysis (in honour of Aleksander Pelczynski) (September 22-29,2002, Bedlewo, Polska).
- Constructive Function Theory (June, 19-23,2002, Varna, Bulgaria) – short talk.
- Workshop Approximation Theory (Warszawa, January 25-29,2002).
- Third International Workshop on Functional Analysis (September 23-29,2001, Trier, Germany) – short talk.
- Function Space VI (September 03-08,2001, Wroclaw, Poland) – short talk.
- Trends in Approximation Theory (May 17-20,2000, Nashville TN, USA) – short talk.
- Workshop Singularités d'applications differentiables (June 01-04,1999, Lille, France).
- Workshop Recent Trends in Banach Spaces organized by the Charles University in Prague (April 18-24,1999, Slovakia).
- Function Space V (September 28-02.09,1998 Poznan Poland) – short talk.
- Workshop Recent Trends in Banach Spaces organized by the Charles University in Prague (April 19-25,1998, Slovakia).