

# TIFFANY WU

DOCTORAL CANDIDATE, UNIVERSITY OF MICHIGAN

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## EDUCATION

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**University of Michigan** 2021–2026 (expected)

*Ph.D. in Education and Psychology*

Thesis: “Showing up is half the battle: How machine learning, psychometrics, and causal inference methods offer distinct yet complementary insights into reducing student absenteeism”

Dissertation Committee: Christina Weiland (chair), Allison Ryan, Ben Hansen, Kevin Stange

**University of Michigan** 2022–2026 (expected)

*Master of Arts in Statistics (Dual Degree Program)*

**University of Chicago** 2018–2019

*Master of Arts in the Social Sciences*

Concentration in Psychology

Thesis: “Multiplication is vexation and practice drives me mad: The relationship between math anxiety, retrieval practice, and test performance”

Advisor: Susan Levine

**Northwestern University** 2011–2015

*Bachelor of Science in Secondary Education and History*

Summa cum Laude

Illinois Middle School and High School Teaching License:

Professional Educator License (PEL) 2315234

## PROFESSIONAL EXPERIENCE

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2021– **University of Michigan, Early Learning Lab, Ann Arbor, MI**

*Graduate Research Assistant, Dr. Christina Weiland*

- Use causal inference, psychometric, and machine learning methods to inform the development of early childhood interventions and policies

2019–2021 **LEAP Innovations, Personalized Learning Education Technology Non-profit, Chicago, IL**

*Research Analyst*

- Conducted program efficacy research and analyzed academic achievement of students using LEAP’s edtech programming in Chicago Public Schools

2018–2019 **University of Chicago, Cognitive Development Lab, Chicago, IL**

*Graduate Research Assistant, Dr. Susan Levine*

- Designed a survey study, using a causal mediation analysis to examine the relationship between math anxiety, retrieval practice, and test performance

2015–2017 **Chicago Public Schools, Lindblom Math & Science Academy, Englewood, Chicago, IL**

*High School Social Sciences Teacher*

- Taught Psychology, Sociology, and Human Geography in a Title 1 school on the South Side of Chicago

- 2011-2015     **Northwestern University, Institute for Policy Research, Evanston, IL**  
*Research Assistant, Dr. Lindsay Chase-Lansdale*
- Collaborated on the Two-Generation Education Intervention project, which combines education and workforce programs for young, low-income parents with high-quality, early childhood education programs for children

## **FELLOWSHIPS AND AWARDS**

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- 2024             Sarri Family Fellowship for Research on Educational Attainment of Children in Low Income Families, Institute for Social Research, University of Michigan (\$6000)
- 2024             Dr. Stuart A. Karabenick Fellowship, University of Michigan (\$1000)
- 2023             Rackham Conference Travel Grant, University of Michigan (\$900)
- 2022-2026       IES Causal Inference in Education Policy Research (CIEPR) Predoctoral Fellowship (4 years of full support for doctoral studies)
- 2022             Association for Public Policy Analysis and Management (APPAM) Equity and Inclusion Student Fellowship (\$600)
- 2022             Institute for Social Research-Rackham Summer Training Award, University of Michigan (\$3800)
- 2021             Rackham Regents Fellowship, University of Michigan (1 year of full support for doctoral studies)
- 2019             Dean's Scholarship, University of Chicago (\$5,250)
- 2019             Master of Arts in the Social Sciences Scholarship, University of Chicago (\$28,998)
- 2015             Highest Undergraduate GPA Award, School of Education and Social Policy, Northwestern University
- 2013-2015       Ralph Robinson Scholarship (\$5000), Northwestern University
- 2012             New Cosmic Frontiers Astronomy & Physics International Essay Competition Third Place, University of Chicago (\$10,000)

## **GRANTS**

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### ***Awarded***

- 2022, 2023       *Collaborative Partnership with Local Michigan Schools to Promote Interest in STEM*  
 DEI Faculty Grant, Industrial and Operations Engineering, University of Michigan  
 PIs: Salar Fattahi (PI), **Tiffany Wu** (co-PI)  
 Total award amount: \$10,000

### ***Under Review***

- 2025             *Transforming Early Childhood Education Program Support Systems Using Modern Machine Learning Methods*  
 Vision Grants Proposal, Spencer Foundation  
 PIs: Pia Caronongan (PI), Paola Guerrero-Rosada (co-PI), Christina Weiland (consultant), **Tiffany Wu** (consultant; if awarded, will support development of a large-scale grant where I will serve as co-PI)  
 Proposed budget: \$75,000

## PUBLICATIONS

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### Peer-Reviewed Journal Articles (published or in press)

McCormick, M., Hanno, E., Weiland, C., **Wu, T.**, Pralica, M., Hsueh, J., Giles, A., Snow, C., & Sachs, J. (2025). Moving beyond point in time estimates: Using growth models to understand when PreK convergence happens, how, and for which skills. *Child Development*. [\[link here\]](#)

**Wu, T.**, Weiland, C., McCormick, M., C., Hsueh, J., Snow, C., & Sachs, J. (2024). One score to rule them all: Comparing the predictive and concurrent validity of 30 ways to score the Hearts and Flowers task. *Assessment*, 1-19. [\[link here\]](#)

### Papers Under Review

**Wu, T.** & Weiland, C. (2024). *Leveraging Modern Machine Learning to Improve Early Warning Systems and Reduce Chronic Absenteeism in Early Childhood*. Revise and resubmit, *Educational Evaluation and Policy Analysis* (also an EdWorkingPaper No. 24-1081. Annenberg Institute for School Reform at Brown University). [\[link here\]](#)

Weiland, C., **Wu, T.**, Unterman, R., Shapiro, A., Lightner, S., Staines, T., & Taylor, A. (2025). *Impacts of Oversubscribed Boston Pre-K Programs through Middle School*. Under review (also an EdWorkingPaper No. 25-1194. Annenberg Institute for School Reform at Brown University). [\[link here\]](#)

**Wu, T.**, Weiland, C., Diemer, M., Unterman, R., Shapiro, A., & Staines, T. (2025). *Measuring “Noncognitive” Skills at Scale: Building Longitudinal Student Behavior Composites Using Administrative Data*. Under review (also an EdWorkingPaper No. 25-1250. Annenberg Institute for School Reform at Brown University). [\[link here\]](#)

Yerington, E., Weiland, C., **Wu, T.**, McCormick, M., Hsueh, J., Sachs, J., Snow, C., Guerrero-Rosada, P., & Xia, Y. *Teacher-Student Racial-Ethnic Match and Kindergarteners’ Academic and Cognitive Gains: Evidence from Boston*. Under review.

### Policy Briefs

Weiland, C., McCormick, M., **Wu, T.**, MacDowell, C., Guerrero-Rosada, P., Taylor, A., Snow, C., & Sachs, J. (2023). *Professional Development in the Time of COVID-19: Evidence and Insights from Early Educators in the Boston Public Schools*. Boston Early Childhood Research Practice Partnership. [\[link here\]](#)

**Wu, T.**, McCormick, M., Weiland, C., Hsueh, J., Sachs, J., & Snow, C. (2023). *What Sustains the Pre-K Boost? New Evidence from Boston Public Schools*. Boston Early Childhood Research Practice Partnership. [\[link here\]](#)

**Wu, T.**, Weiland, C., McCormick, M., Sachs, J., Taylor, A., Hsueh, J., & Snow, C. (2023). *What if You Miss the First Year of an Aligned Curriculum? Boston Public Schools’ Pre-K Non-Attendees Made Equivalent Learning Gains Whether or Not their Kindergarten Program was Aligned with Pre-K*. Boston Early Childhood Research Practice Partnership. [\[link here\]](#)

## Works in Progress

**Wu, T.,** Lightner, S., Staines, T., Weiland, C., Unterman, R., & Shapiro, A. *The Garden of Forking Absenteeism Paths: Unpacking the Many Measures of Student Attendance and Thresholds of Chronic Absenteeism.*

**Wu, T.** *Fair Warning? Improving Early Warning Systems for Ninth Grade Chronic Absenteeism through Longitudinal Trajectories, Assessment of Computational Cost, and Fairness Evaluation.*

**Wu, T.,** Unterman, R., & Weiland, C. *Quantifying and Predicting Variation in the Long-Term Effects of Oversubscribed Prekindergarten Programs.*

## PRESENTATIONS, INVITED LECTURES, AND CONFERENCE ACTIVITY

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### Presentations

Weiland, C., **Wu, T.,** Unterman, R., Shapiro, A., Lightner, S., Staines, T., & Taylor, A. (2025, May). *Impacts of Oversubscribed Boston Pre-K Programs through Middle School.* Causal Inference in Education Research Seminar, Ann Arbor, MI.

**Wu, T.** & Weiland, C. (2025, May). *Leveraging Modern Machine Learning to Improve Early Warning Systems and Reduce Chronic Absenteeism in Early Childhood.* Supporting Students in their Earliest Years: Innovations at the State and Local Levels. Harvard University Strategic Data Project Convening, Boston, MA.

Yerington, E., Weiland, C., **Wu, T.,** McCormick, M., Hsueh, J., Sachs, J., Snow, C., Guerrero-Rosada, P., & Xia, Y. (2025, May). *Teacher-Student Racial-Ethnic Match and Kindergarteners' Academic and Cognitive Gains: Evidence from Boston.* Society for Research in Child Development (SRCD), Minneapolis, MN.

**Wu, T.** (2025, February). *Leveraging Modern Machine Learning to Improve Early Warning Systems and Reduce Chronic Absenteeism in Early Childhood.* Combined Program in Education and Psychology Brown Bag, Ann Arbor, MI.

**Wu, T.** & Weiland, C. (2024, September). *Leveraging Modern Machine Learning to Reduce Chronic Absenteeism in Early Childhood.* Society for Research on Educational Effectiveness (SREE), Baltimore, MD.

**Wu, T.,** Weiland, C., Unterman, R., Shapiro, A. (2023, November). *Prekindergarten Absenteeism in Boston Public Schools: Predictors, Patterns, and Relationships to Learning Outcomes.* Association for Public Policy Analysis & Management (APPAM), Atlanta, GA.

**Wu, T.** & Weiland, C. (2023, August). *SMOTE, XGBoost, Action! Leveraging Machine Learning for Improving Chronic Absenteeism Prediction in Early Childhood.* Causal Inference in Education Research Seminar, Ann Arbor, MI.

**Wu, T.** (2019, June). *Multiplication is Vexation and Practice Drives Me Mad: Retrieval Practice Accuracy Mediates the Effect of Math Anxiety on Test Performance*. The University of Chicago MAPSS Conference, Chicago, IL.

## Posters

**Wu, T.,** Weiland, C., McCormick, M., Hsueh, J., Snow, C., & Sachs, J. (2023, May). *One Score to Rule Them All? Comparing the Predictive and Concurrent Validity of 30 Ways to Score the Hearts and Flowers Task*. HighScope International Conference, Ypsilanti, MI.

**Wu, T.,** Weiland, C., McCormick, M., Hsueh, J., Snow, C., & Sachs, J. (2023, May). *One Score to Rule Them All? Comparing the Predictive and Concurrent Validity of 30 Ways to Score the Hearts and Flowers Task*. American Educational Research Association (AERA), Chicago, IL.

**Wu, T.,** Weiland, C., McCormick, M., Hsueh, J., Snow, C., & Sachs, J. (2023, March). *One Score to Rule Them All? Comparing the Predictive and Concurrent Validity of 30 Ways to Score the Hearts and Flowers Task*. The Susan B. Meister Lecture in Child Health Policy, the University of Michigan Child Health Evaluation and Research Center, Ann Arbor, MI.

Jenifer, J. & **Wu, T.** (2019, May). *Math Anxiety & Retrieval Practice: A Potential Strategy for Reducing Performance Gaps*. Association for Psychological Science (APS) 31st Annual Convention. Washington, D.C.

Sommer, T.E., Chase-Lansdale, L., Sabol, T.J., Yoshikawa, H., Brooks-Gunn, J., **Wu, T.** (2014, June). *Barrier or Opportunity to Promote Parental Employment?: Early Childhood Education Programs for Low-Income Children*. Work and Family Researchers Network Conference. New York City, NY.

## TEACHING EXPERIENCE

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### Graduate Student Instructor

Fall 2024 **University of Michigan, Ann Arbor, MI**  
Psychometric Theory: Classical and Latent Trait Models (EDUC 707/PSYCH 803)  
*Teaching Assistant with Dr. Matthew Diemer*

Summer 2024 **University of Michigan, Ann Arbor, MI**  
Latent Variable Modeling to Advance Diversity, Equity, and Inclusion  
International Consortium for Political and Social Research (ICPSR) Summer Program  
*Teaching Assistant with Dr. Matthew Diemer*

### K-12 Teaching Experience

2015-2017 **Chicago Public Schools, Lindblom Math & Science Academy (Title 1 School), Englewood, Chicago, IL**  
*High School Social Sciences Teacher*

2012-2015    **Northwestern University Center for Talent Development, Evanston, IL**  
*Teaching Assistant & Residential Teaching Assistant*

### **Guest Lectures**

**Wu, T.** (2025, February). *Leveraging Machine Learning to Improve Chronic Absenteeism Prediction in Early Childhood*. Guest Lecture in IOE 473: Advanced Data Analytics. University of Michigan, Ann Arbor, MI.

**Wu, T.** (2024, October). *Regression Discontinuity and the Effectiveness of Early Warning Systems*. Guest Lecture in PUBPOL 712: Causal Inference in Education Policy Research. University of Michigan, Ann Arbor, MI.

### **PAID CONSULTANCIES**

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2023                    **Johnson County Cabinet for Children and Youth, Vienna, IL**  
*Education Research Consultant*

### **REFeree SERVICE**

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2024-Present        **Ad Hoc Reviewer**  
AERA Open, Assessment

### **ACADEMIC SERVICE**

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#### **Service to the University of Michigan**

**2024-2025**    Coordinator, Causal Inference in Education Research Seminar (CIERS), Education Policy Initiative

**2024-2025**    Admissions Committee Member, Combined Program in Education and Psychology

**2023-2024**    Curriculum Committee Member, Combined Program in Education and Psychology

**2022-2023**    Social Committee Member, Combined Program in Education and Psychology

**2022-2023**    Executive Committee Member, Combined Program in Education and Psychology

**2021-2022**    Recruitment Committee Member, Combined Program in Education and Psychology

### **AFFILIATIONS**

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**2025-**            Association for Education Finance & Policy (AEFP)

**2024-**            Society for Research on Educational Effectiveness (SREE)

**2022-**            Association for Public Policy Analysis & Management (APPAM)

**2021-**            American Educational Research Association (AERA)

## **PROGRAMMING LANGUAGES**

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Most experienced with R, Python, Stata, and SQL.

Some experience with SPSS, MPlus, HTML, CSS, and Javascript.