Curriculum Vitae
David Patwin

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Citizenship: U.S.A.

Education:

Wayne State University	Detroit, USA	Bachelor of Arts Major in Math	December 2019 Minor in C. Sc.
Wayne State University Advisors:	Detroit, USA Peiyong Wang	Master of Science & George Yin	August 2021 Mathematics
Wayne State University Advisors:	Detroit, USA Peiyong Wang	Ph.D. & George Yin	January 2020 - present Mathematics

Awards:

- Outstanding Graduate Teaching Assistant, Mathematics, Wayne State University, 2024

- Dean's Diversity Fellowship, Graduate School, Wayne State University, 2019–2022.

- Graduate Teaching Assistantship, Mathematics Department, Wayne State University, 2023-2025

- Maurice J. Zelonka Endowed Scholarship, Mathematics Department, Wayne State University, 2023-2024

- M.F. Janowitz Endowed Scholarship, Mathematics Department, Wayne State University, 2020-2021

- Ronald W. Haughton Memorial Scholarship, Wayne State University, 2019-2020

- Math Corps Presidential Scholarship, Wayne State University, 2015-2019

Research

Interests:

Partial Differential Equations, Free Boundary Problems, Probability and Stochastic Processes

Publications:

1. Patwin, D. and Wang, P., *A free boundary problem associated with the relativistic Brillouin electron flow*, under review, 48 pp.

Conferences:

1. NSF Advanced Studies Institute in France:

   · Location: Bourges, France
   · Date: May 2023
   · Role: Presenter
   · Presentation Title: "Introduction to a two-phase free boundary problem modeling the spread of some hazardous material"

2. NSF Advanced Studies Institute in France:

   · Location: Bourges, France
   · Date: May 2023
   · Role: Session Chair
   · Description: Chaired a session on "robustness and resilience", which involved introducing speakers, moderating the discussion, and ensuring the smooth flow of presentations. Managed time constraints and facilitated audience engagement.

3. Ohio River Analysis Meeting 2024

   · Location: Lexington, Kentucky
   · Date: March 2024
   · Role: Presenter
   · "Presentation Title: A Free Boundary Problem Associated With Relativistic Brillouin Electron Flow"

Teaching

Wayne State University:

I. Graduate Teaching Assistant, September 2023 - Present

    A. Courses taught
    <u>2024 Winter MAT 2010 Calculus I</u>

    I conducted a pre-semester survey to better understand my students' backgrounds and expectations. Additionally, I recorded a video to introduce myself and the course before the semester began. I also participated in an optional mid-semester assessment program, during which an expert teaching consultant gathered student feedback to evaluate my teaching methods and classroom practices. Afterward, I met with the consultant to discuss the results, which included very positive feedback from my students. I was also informally mentored throughout the semester by an expert teaching faculty in the mathematics department.Throughout the semester, I held regular office hours and offered additional review sessions to help students revisit previous topics in preparation for quizzes and exams. This was a coordinated course with standard departmental final exam.

    <u>2024 Fall MAT 1070 College Algebra</u>

    I conducted a pre-semester survey to better understand my students' backgrounds and expectations. Additionally, I participated in an optional mid-semester assessment program, where an expert teaching consultant gathered student feedback on my teaching methods and classroom practices. Afterward, I met with the consultant to review the results, which included very positive feedback from the students. This 5-credit course is known for being particularly challenging to teach, as it is a remedial course for freshmen and covers a large amount of material. My class of 35 students was diverse, both ethnically and in terms of academic readiness, which required me to be highly adaptable in my teaching approach—an aspect of the experience that I thoroughly enjoyed. This is a coordinated course with standard departmental final exam.

Henry Ford College:

I. Adjunct Instructor, September 2024 - Present

    A. Courses taught
    <u>2024 Fall MAT 131 Math for the Modern World</u>

This course covers various applications of mathematics, focusing on topics such as linear and exponential growth, statistics, personal finance, and geometry, with an emphasis on collaboration and problem-solving techniques. It is designed for students without a specific mathematics requirement and features a diverse student body across different programs, ethnicities, and academic levels.

Wayne State University Math Corps Summer Camp:

The Math Corps is a nationally recognized academic and mentoring summer outreach program that serves middle and high school students in Detroit. The program not only helps students achieve proficiency in their respective grade levels but also introduces them to advanced mathematical concepts. More importantly, rooted in social justice, Math Corps empowers students by providing the tools and skills necessary for success in both academics and life. The camp operates each summer for 6 weeks, between July and August.

I. Instructor, July 2021 - Present

    A. Courses taught

Foundations of Algebra (2 sections) (2021 - 2024)

This class was designed for rising 9th-grade students and focused on reviewing real numbers, operations on real numbers, and basic algebra. The goal was to equip students with the foundational skills necessary for success in their first-year high school math courses. I developed lessons and collaborated with colleagues to optimize learning outcomes. In 2021, we transitioned to a virtual format due to the pandemic, which posed unique challenges, especially for younger students. To address these challenges, I implemented strategies to maintain student engagement and ensure their continued progress in an online learning environment.

Discovery (2022 - 2024)

This class was designed to challenge students' understanding and introduce them to advanced mathematical concepts. I taught rising 8th-grade students key topics in calculus, such as limits, series, infinite series, and Gauss summation. Teaching this class presented unique challenges, as lesson planning and delivery needed to be precise to ensure that students not only found the material engaging but also developed a solid comprehension of these complex topics. Utilizing a Socratic teaching approach, I achieved strong success in fostering understanding and participation.

<u>Functions (2021)</u>

I taught foundational algebra concepts to rising 11th and 12th-grade students, incorporating advanced topics from Algebra II and pre-calculus. Due to the pandemic, the course was delivered virtually, which presented significant challenges. To overcome these, I developed strategies to keep students engaged while challenging them to deepen their understanding of the subject matter.

II. College Instructor, July 2016 - August 2020

I led and mentored teams of middle and high school students, fostering relationships and tutoring them in mathematics while teaching strategies for both academic and personal success. In this role, I organized meetings, graded homework, evaluated tutors, and took on various additional responsibilities.

III. Teaching Assistant, July 2012 - August 2015

As a high school student in this role, I was responsible for tutoring and mentoring middle school students with varying levels of academic readiness. I developed lesson plans, graded homework, and collaborated with staff to receive personalized feedback, continuously improving my effectiveness as a tutor and mentor. It was here that my passion for teaching blossomed.

Wayne State University Mathematics Emerging Scholars Program:

I. Undergraduate Assistant, September 2016 - September 2019

In this role, I was responsible for grading homework, holding office hours, and meeting regularly with the professor to discuss class-related matters. Additionally, I collaborated with the instructor of record during a co-requisite workshop, where students worked together on challenging topics that aligned with their current coursework.

A. Courses Assisted
MAT 2020 Calculus II (W21)
MAT 0993 Beginning Algebra (F19, F16)
MAT 1800 Elementary Function (W19)
MAT 2010 Calculus I (F18, F17)

Wayne State University Mathematics Resource Center:

I. Tutor, September 2017 - May 2018

In this role, I was assigned to the Wayne State University Academic Success Center, an appointment-based tutoring service. I regularly worked with returning students while also tutoring new students as they made appointments. This exposed me to a wide range of students with diverse backgrounds and varying levels of academic readiness, requiring me to be highly adaptable. Additionally, I was assigned to tutor in the Wayne State University Student Veterans Office, where I worked with veterans and gained valuable experience interacting with individuals who have served our country.

Service

Invited Panel Discussions:

1. Invited Panelist, Mathematics Boot Camp, Warrior 360 Momentum Week at Wayne State University held on Friday, July 28, 2023. I served as a student panelist for a group of incoming freshmen, sharing my experiences with taking mathematics classes, overcoming fixed mindsets, and achieving overall success at the university level.

2. Invited Panelist, Summer of Success Program held onTuesday, June 20, 2023 at Wayne State University: Spoke on the topic 'Strategies for Success in Mathematics Classes,' providing insights and guidance to students aiming to excel in their mathematical studies. Shared personal experiences and effective learning strategies tailored to various mathematical disciplines. Emphasized the importance of perseverance, critical thinking, and proactive engagement in academic pursuits. Offered practical tips and advice for overcoming challenges and maximizing learning outcomes in mathematics courses.

Technical Skills:

1. Programming Languages

   - C++
   - R
   - MATLAB

2. Software Proficiency:

- Microsoft Office Suite:
  - Word
  - Excel
  - Powerpoint