

Veronica White

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RESEARCH INTERESTS

Methodology: Optimization (stochastic, discrete, mixed-integer), queueing, simulation (discrete event), program evaluation (causal inference, statistical tests), implementation science.

Application Areas of Interest: The intersection of public health and safety (e.g., substance use, mental health, public policy, policing, healthcare access, criminal justice, homelessness)

Statement: My research interests involve modeling, developing, and evaluating interconnected systems that improve public health and safety outcomes via policies and programming. In the past, I used operations research approached to the emerging intersection of policing and substance use disorder, where substance use disorder is a societal problem that impacts many disciplines/areas (e.g., social services, healthcare, criminal justice) and many populations (e.g., people with mental illness, LGBTQIA+, people experiencing homelessness). In the future, I plan to continue to use OR to provide insight into how to connect, implement, and improve public health programs to criminal justice issues.

EDUCATION

Ph.D. – Industrial & Systems Engineering Expected May 2024

University of Wisconsin-Madison

Dissertation (*working title*): Mathematical modeling to support mental health-focused policing and substance use disorder treatment

Committee: Dr. Laura A. Albert (Chair), Dr. Gabriel Zayas-Cabán, Dr. Yonatan Mintz, and Dr. Marguerite Burns

MS – Industrial & Systems Engineering Spring 2019

University of Wisconsin-Madison

BS – Industrial & Manufacturing Systems Engineering *Magna cum Laude* 2017

Iowa State University of Science & Technology

GRANTS

External

INFORMS DEI Ambassador Program, \$1,700 2023

INFORMS DEI Ambassador Program, \$1,930 2022

National Institute of Justice Research Assistant Program, \$32,000 2021

National Institute of Justice Research Assistant Program, \$80,260 2020

Internal

Student Research Grants Competition, \$600 2019

Conference Presentation Fund - University of Wisconsin-Madison

PUBLICATIONS

Journal Publications

1. **White, V. M.**, Hunt, J., Green, B. [A discussion of current crime forecasting indices and an improvement to the prediction efficiency index for applications](#). Security Journal. doi: 10.1057/s41284-023-00367-4.

2. Zhang, A., Balles, J.A., Nyland, J.E., Nguyen, T.H., **White, V.M.**, Zgierska, A.E. (2022). [The relationship between police contacts for drug use-related crime and future arrests, incarceration, and overdoses: a retrospective observational study highlighting the need to break the vicious cycle](https://doi.org/10.1186/s12954-022-00652-2). *Harm Reduction Journal*, 19, 67. <https://doi.org/10.1186/s12954-022-00652-2>
3. **White, V. M.**, Avendano, S. A., Albert, L. A., Zgierska, A.E., Balles J., Zayas-Cabán G. (2021). [The impact of a community-level initiative that promotes engagement in addiction treatment on recidivism](https://doi.org/10.1016/j.drugalcdep.2021.108915). *Drug and Alcohol Dependence*, 227. DOI: 10.1016/j.drugalcdep.2021.108915
4. Zgierska, A. E., **White, V. M.**, Balles, J., Nelson, C., Freedman, J., Nguyen, T. H., & Johnson, S. C. (2021). [Pre-arrest diversion to addiction treatment by law enforcement: protocol for the community-level policing initiative to reduce addiction-related harm, including crime](https://doi.org/10.1186/s40352-021-00134-w). *Health & Justice*, 9(1), 1-9. DOI: 10.1186/s40352-021-00134-w
5. Yoon, S., Albert, L. A., & **White, V. M.** (2021). [A stochastic programming approach for locating and dispatching two types of ambulances](https://doi.org/10.1287/trsc.2020.1023). *Transportation Science*, 55(2), 275-296. DOI: 10.1287/trsc.2020.1023
6. **White, V. M.**, Molfenter, T., Gustafson, D. H., Horst, J., Greller, R., Kim, J. S., ... & Toy, A. (2020). [NIA Tx-TI versus typical product training on e-health technology implementation: a clustered randomized controlled trial study protocol](https://doi.org/10.1186/s13012-020-01053-4). *Implementation Science*, 15(1), 1-12. DOI: 10.1186/s13012-020-01053-4
7. Lee, S., Wei, S., **White, V.**, Bain, P., Baker, C., & Li, J. (2020). [Classification of opioid usage through semi-supervised learning for total joint replacement patients](https://doi.org/10.1109/JBHI.2020.2992973). *IEEE Journal of biomedical and health informatics*, 25(1), 189-200, Jan. 2021. DOI: 10.1109/JBHI.2020.2992973

Conference Proceedings

8. **White, V. M.**, Hunt, J. (2022). [Measuring how relatively “good” a hot-spot map is: A summary of current metrics](#). In Proceedings of the *IISE Annual Conference & Expo*. May 20 – 24. Seattle, WA.
9. Mittal, A., **White, V. M.**, & Krejci, C. (2017). [A framework for collaboration among regional food system participants](#). In Proceedings of the *Industrial & Systems Engineering Research Conference*. May 20 - 23. Pittsburgh, PA.

Government Reports

10. **White, V. M.**, Applegarth, M., Hudgins, C., Hunt, J. (2022). [Results from the 2021 NIJ Recidivism Forecasting Challenge](#). *National Institute of Justice*. NCJ: 304110.
11. Hudgins, C. D., **White, V. M.**, Martin, E. Advancing Evidence-Based Practices in Criminal Justice with Implementation Science. *National Institute of Justice*. (In Peer Review).
12. **White, V. M.**, Hudgins, C. D., Rief, R., Pimsler, M., Hunt, J. Meta-Analyses of the 2022 NIJ Forecasting Challenge Winning Submissions. *National Institute of Justice*. (In Peer Review).

13. Hudgins, C. D., **White, V. M.**, Kane, R., O'Brien, M. FY 2021 Sentinel Event Review for Successful Transition and Reentry Together (START) Program in the Eastern District of Wisconsin. *National Institute of Justice*. (In Peer Review)

Submitted and Working Papers

14. **White, V. M.**, Albert, L. A. (2023). [Evaluating diversion and treatment policies for opioid use disorder](https://arxiv.org/abs/2311.05076). arXiv. Preprint. <https://arxiv.org/abs/2311.05076>.
15. **White, V. M.**, Albert, L. A. Police Response Models for Crisis Calls using Queueing Theory. (Working paper)

PRESENTATIONS

* Indicates Presenting Author(s)

Conference Presentations

16. **White, V. M.***, Albert, L. [Opioid Treatment Policies Using Discrete Event Simulation](#). 2023 INFORMS Annual Meeting. Oct. 15-18. Phoenix, AZ. (upcoming)
17. **White, V. M.***, Albert, L. Diversion and Treatment Policies for Opioid Use Disorder: A Discrete Event Simulation Approach. 2022 INFORMS Annual Meeting. Oct. 16-19. Indianapolis, IN.
18. **White, V. M.***, Ogidigben, M.*, Haseltine, C. A.*, Scaria, E., Strategic Initiative: High School Outreach Flash Talk. 2022 INFORMS Annual Meeting. Oct. 16-19. Indianapolis, IN.
19. **White, V. M.***, Albert, L. Analyzing Police Response Models with Multiple Types of Vehicles. 2022 International Association of Crime Analysts. August 22–26. Chicago, IL.
20. **White, V. M.***, Hunt, J. Measuring how relatively “good” a hot-spot map is: A summary of current metrics. 2022 IISE Annual Conference & Expo. May 20–24. Seattle, WA.
21. **White, V. M.***, Albert, L. Discrete Event Simulation for Modeling Addiction Treatment Public Policy Changes in Dane County, Wisconsin. 2021 INFORMS Annual Meeting. Oct. 24-27. Virtual.
22. **White, V. M.***, Zayas-Cabán, G., Alvarez, S. A., Albert, L. The Impact of a Community-level Initiative That Promotes Engagement In Addiction Treatment On Crime Reduction. *2020 INFORMS Annual Meeting*. Nov. 8-13. Virtual.
23. Mittal, A.*, **White, V. M.***, Krejci, C. C. (2017). A Framework for Collaboration among Regional Food System Participants. At the *Industrial & Systems Engineering Research Conference*. May 20 - 23. Pittsburgh, PA.
24. Mittal, A.*, **White, V. M.***, Craven, T.*, Grimm, J., Krejci, C. C. (2016). [Regional Food Hub Coordination Inventory Management System](#). At the *2016 Annual Iowa Organic Conference*. Nov. 13 - 14. Iowa City, IA.

Project-Related Stakeholder Presentations

25. “Operations Research Meets Criminal Justice.” May 2021. *Let’s RAP! Series*. National Institute of Justice, Washington, D.C. (Virtual).
26. “Amazon Devices Fulfillment Center Allocation Solver.” Aug. 2020. *Internship Project Report Out*. Amazon Inc. Seattle, WA. (Virtual).
27. “Preliminary MARI Outcomes Analysis.” Feb. 2020 & Jun. 2019 at the *MARI Operations Team Monthly Meeting*. Madison, WI.

28. “Counselor Training for RISE-Iowa Mobile Substance Use Disorder (SUD) Treatment Application.” Fall 2019-Spring 2020 as a part of an implementation RCT. Multiple SUD clinic locations across Iowa.
29. “Predicting Opioid Prescription Level Post TJR Surgery.” (2018). At the *Opioid Task Force Meeting*. Jan. 11. Madison, WI.
30. “[Iowa Food Hub Collaboration Network](#)” with Mittal A. (2017). At the *Iowa & Michigan Food Hub Managers Working Group Meeting*. May 9 - 10. West Union, IA.

Poster Presentations

31. **White, V. M.***, Meredith, M.*, Albert, L. Evaluation of a Two-Year Policing Initiative. *2019 INFORMS Annual Meeting*. Oct. 20 – 23. Seattle, Washington.
32. Nguyen, T.*, Zgierska, A., **White, V.** (2019) Madison Addiction Recovery Initiative. *NAPCRG 2019 Practice-based Research Network Conference*. Jun. 24-26. Bethesda, Maryland.
 - ❖ Award: Runner-up Best Poster
33. **White, V. M.***; Mittal, A.; Krejci, C. C. (2017). [Inventory Tracking for Iowa’s Regional Food Network](#). Poster presented at the *Industrial Advisory Board Meeting*. Apr. 20. Industrial & Manufacturing Systems Engineering, Iowa State University, Ames, IA.

RESEARCH EXPERIENCE

Policing and Opioid Use Disorder – Research Assistant Oct. 2018 to Present
UW Industrial and Systems Engineering – Dr. Albert & Dr. Zayas-Cabán

- Study Overview: NSF funding for analysis of a smart policing initiative, **see [4]**, which will be used for optimization models in illicit drug interdiction and police scheduling
- Creating graphs and simple statistical analysis done with RStudio, **see [27,31,32]**
- Developed causal inference methods to evaluate 6-month recidivism outcomes, **see [1,22]**
- Developing DES simulation to model county-level impacts of various policies, **see [14,16]**
- Future work: Optimizing police and mental health 988 dispatching using Python, **see [15]**

Criminal Justice Research – Research Assistant Program October 2020 to March 2023
National Institute of Justice

- Developed two NIJ solicitations and part of another solicitation’s grant review process
- Added to two NIJ research portfolios on hot-spot mapping metrics and mass shootings
- Enhanced Office of Justice Program’s human subjects IRB approval process
- Organized April 2021 Forensic Intelligence Workshop for over 50 federal partners
- Wrote two papers on criminology hot-spot metrics, **see [8,1]**
- Wrote two NIJ reports on the 2021 NIJ Recidivism Forecasting Challenge, **see [10,12]**
- Enhanced the data collection and analyses of the Eastern District of Wisconsin’s Successful Transition and Re-entry Together (START) program, **see [13]**

Iowa e-Health Project – Research Assistant October 2018 to August 2020
Center for Health and Systems Studies (CHESS) – Dr. Gustafson & Dr. Molfenter

- Study Overview: Randomized control trial on implementing an addiction-based recovery mobile application in the clinic setting, **see [6]**
- Worked with Iowa Department of Public Health to obtain de-identified data for the study
- Planned and developed study protocol execution and materials for training at 11 addiction organizations, **see [28]**

Stochastic Ambulance Dispatching Modeling – Research Assistant May 2018 to July 2020

UW Industrial and Systems Engineering – Dr. Albert

- Completed and summarized computational results using Python for a stochastic programming model that optimizes the location and dispatching of emergency medical service (EMS) vehicles
- The resulting paper is published in Transportation Science, **see [5]**

Graduate Research Assistant

September 2017 to May 2017

University of Wisconsin-Madison – Dr. Jingshan Li & Dr. Philip Bain MD

- Presented initial findings to stakeholders, **see [29]** (e.g., SSM health, African American Opioid Coalition of Dane County, Safe Communities)
- Managed and cleaned database of 250+ orthopedic patients
- Built logistic regression model and visualizations in Python from statistically significant variables, **see [7]**

Undergraduate Research Assistant, see [9,23,24,30,33]

September 2016 to June 2017

Iowa State University – Dr. Caroline Krejci

- The project site, [Iowa Food Hub Network](#), has all presentations and project deliverables

TEACHING EXPERIENCE

Teaching Assistant: I held twice-weekly office hours and provided regular feedback to students. Courses ranged from 40 students to over 100 students. For the 300 level courses I prepared and facilitated 2-3 weekly discussion sections to summarize and practice course material with 25-35 students each.

- I SY E 323 – Operations Research: Deterministic Modeling Spring 2018, Fall 2018
- I SY E 524 – Introduction to Optimization Summer 2018
- I SY E 313 – Engineering Economic Analysis Fall 2017, Summer 2018

Guest Lecturing:

- I SY E 524 – Introduction to Optimization – 75 min ~ 60 students
 - June 17th & 19th, 2019 — Course Introduction & Review of Linear Algebra
- I SY E 323 – Operations Research: Deterministic Modeling – 75 min ~ 65 students
 - Nov. 6, 2018 — Integer Programming
 - Apr. 26, 2018 — the Branch and Bound Algorithm

Tutor: Worked with five groups of 3-6 students. Each group met bi-weekly and worked through example problems and student questions.

- Statistics 231 – Introduction to Statistical Concepts & Methods Fall 2016, Spring 2017
- Physics 222 – Introduction to Classical Physics 2 Fall 2016, Spring 2017

Supplemental Instruction Leader: Facilitated 3-4 open weekly sessions of 2-20 students.

Conducted open exam reviews of 30-100+ students. Created practice material available at sessions and online. Participated in workshops that taught communication and facilitation techniques.

- Engineering 160 – Engineering Problems Fall 2015, Spring 2016
- Economics 101 – Principals of Microeconomics Fall 2014

RESEARCH MENTORING**Undergraduates**

- Colleen Wall, UW – Madison ISYE, Summer - Fall 2021
 “Time-Series Modeling of Opioid Related Hospital Encounters”
 ❖ Awarded 3rd in OR/MS Tomorrow 2021 Mini-Poster Competition

- Meghan Meredith, UW – Madison ISYE, Spring 2018 - Spring 2019
“Literature Review and Statistical Analyses of a Community Policing Initiative”
- Praan Pisitthakarn, UW – Madison ISYE & CHESS, Spring 2019
“VBA Graphs for an Addiction Mobile Treatment Implementation RCT”

PROFESSIONAL DEVELOPMENT

Colloquia, Seminars, and Workshops:

- IISE Program — Future Faculty Fellows (3F), Nov. 2021 to May 2022
- INFORMS 2021 Doctoral Student Colloquium, Oct 23, 2021
- [NSF/UTA Decision Analytics for Dynamic Policing Workshop](#), May 9-10, 2019

Courses and Trainings:

- Delta Program Book club — Black Brown Bruised by Ebony McGee, Spring 2021
- Delta Program — Research Mentor Training, Summer 2019
- CIRTL Network course — Diversity in the College Classroom, Spring 2019

SERVICE

- Session Chair** – “[Policing and the Opioid Crisis](#)” Oct. 2023
INFORMS Annual Meeting 2023 – Phoenix, AZ
- Committee Member** of Graduate Student Advisory Committee (GSAC) Nov. 2020 to Present
College of Engineering – University of Wisconsin Madison
- Ad Hoc Reviewer** Aug. 2020 to Present
Implementation Science
- Cluster Member** of Student and Alumni Affairs (SAA) Cluster Dec. 2020 to December 2022
Industrial and Systems Engineering Department – University of Wisconsin-Madison
- Session Co-Chair** with Adam Schmidt, “Simulation Applications for Public Policy” Oct. 2021
INFORMS Annual Meeting 2021
- Grant Reviewer** for Chapter Development Fund Jun. 2021 to Aug. 2021
National Science Policy Network (NSPN)
- Vice President** May 2019 to April 2020
INFORMS Student Chapter– University of Wisconsin Madison
- Scribe** – Wisconsin Institute for Healthcare Systems Engineering Conference May 2018
- Pi Mile Run Co-Coordinator** Oct. 2018 to Apr. 2019
Tau Beta Pi Engineering Honors Society – University of Wisconsin-Madison
- Managed, fundraised, and secured permits and venue for local 5k/10k that hosted 100 runners and raised over \$2,000 for Occupaws Guide Dog Association
- Vice President** Jan. 2016 to May 2017
Tau Beta Pi Engineering Honors Society – Iowa State University
- Led committee to compete in SourceAmerica’s 2016-2017 Design Challenge
 - Oversaw projects team, which organizes several community-wide events each semester
 - Collaborated with the Advisory board to provide direction and new ideas for the chapter
- Vice President of Membership Development** Jan. 2015 to Dec. 2015
Iowa Gamma Chapter of Pi Beta Phi – Iowa State University
- Developed and implemented a new Academic Program for the 170-member chapter
 - Organized events such as Faculty Appreciation Night, values-based workshops, etc.

MEDIA AND PRESS

Social Media

- Personal Blog: <https://vmwhite.github.io/blog.html>
- Twitter Handle: [@VeronicaMWhite](#)
- Awarded [Best Tweet](#) of ACM EAAMO 2021 Conference

News Articles

- [Increasing Underrepresented Students' Exposure to OR/MS through K-12 Outreach](#) – OR/MS article
- [What's Your StORY? Veronica White](#) – OR/MS Today Series
- [Graduate students work to bolster diversity in operations research](#) – by *Thomas Ziemer*
- [Results from the National Institute of Justice recidivism forecasting challenge](#) – Corrections Today – March/April 2022, pages 12-16
- [MARI reduces six-month recidivism odds](#) –The Capital Times News – Madison, WI

Other Press and News

- [Why Operations Research? Reflecting on Our Journeys to Becoming Ph.D. students in Operations Research](#) – INFORMS DEI Blog Post
- [New study reveals efficacy of Madison's addiction recovery initiative](#) – Radio Interview with WORT 89.9 FM's *Jonah Chester*
- [Study shows effectiveness of substance-use diversion program](#) – by *Thomas Ziemer*
- [The food hub managers working group](#) – by *Savanna Lyons*
- [Local foods program supports food hubs across Iowa](#) – by *Teresa Wiemerslage*

HONORS AND AWARDS

DAS/SDP Decision Analysis Practice Award, Finalist	Fall 2022
INFORMS DEI Ambassador	Spring 2022 & Spring 2023
IISE Future Faculty Fellows (3F) Program	Spring 2022
National Institute of Justice Research Assistant Program Fellowship	Fall 2020 & Fall 2021
Rea & Gustafson Fellowship	Fall 2019
Chancellor's Opportunity Award	Fall 2017
REOMAC Foundation Scholarship	Fall 2015
Wallace Scholar	Fall 2014
Tau Beta Pi – Iowa Alpha Scholar	Fall 2014
Award for Competitive Excellence	Fall 2013
Dean's List Iowa State University	Fall 2013 – Spring 2017
Top 2% of Graduating Class	Fall 2013

INDUSTRY EXPERIENCE

DIAL OR Scientist Intern, see [26] Summer 2020

Amazon – Virtual – Seattle, WA

- Created a new solver that separated the final optimization model from the primary Amazon Devices Solver, allowing it to be solved separately and repeatedly
- Improved several constraints of the separated model
- Communicated the new solver's purpose and its logic to various stakeholders such as my team, demand planning team, and contractors in the supply chain for the primary model.

- Researched methods to improve optimization solver times
- Documented solver's inner workings for the technical team & larger Amazon audience

Corporate Quality Engineering Intern

Summer 2016 & Summer 2017

Shure Incorporated – Niles, IL

- Utilized Minitab to analyze a destructive gauge R&R, Salt-fog study using ANOVA, etc.
- Used hypothesis & accelerated-life testing to evaluate new product reliability
- Implemented a new overseas data collection system
- Created 7 test plans for product approval and conducted analyses on results

Safety and Ergonomic Intern

January 2015 to August 2015

Lennox Industries Inc. – Marshalltown, IA

- Led the Joint Ergonomics Committee in completing over 23 projects
- Aided in 3 Rapid Continuous Improvement projects that lead to ergonomic improvements
- Completed 85 Washington Ergonomic Assessments for various work cells

ORGANIZATIONS AND INTERESTS

INFORMS: Women in OR/MS (WORMS) Forum, Minority Issues Forum (MIF), Optimization Society, Decision Analysis Society (DAS), Analytics Society, Simulation Society, Public Sector OR Section, Service Science Section, Multiple Criteria Decision-Making Section, Junior Faculty Interest Group

Institute of Industrial and Systems Engineers (IISE)

Tau Beta Pi (TBP) – Engineering Honors Society

NSPN – National Science Policy Network

Philharmonic Chorus of Madison