

Veronica White

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RESEARCH INTERESTS

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

Application Areas of Interest: Substance use disorder, mental health, public policy, policing, healthcare, criminal justice, LGBTQIA+, homelessness

Statement: My research interests involve modeling, developing, and evaluating the interconnected systems essential to improving substance use disorder and related community outcomes via policies and programming. 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).

EDUCATION

Ph.D. – Industrial & Systems Engineering University of Wisconsin-Madison Dissertation: TBD Committee: Laura A. Albert (Chair), Gabriel Zayas-Cabán, TBD	Expected May 2023
MS – Industrial & Systems Engineering University of Wisconsin-Madison	Spring 2019
BS - Industrial & Manufacturing Systems Engineering Iowa State University of Science & Technology	<i>Magna cum Laude</i> 2017

PUBLICATIONS

Journal Publications

1. **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](#). Drug and Alcohol Dependence, 227. DOI: 10.1016/j.drugalcdep.2021.108915
2. 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](#). Health & Justice, 9(1), 1-9. DOI: 10.1186/s40352-021-00134-w
3. Yoon, S., Albert, L. A., & **White, V. M.** (2021). [A stochastic programming approach for locating and dispatching two types of ambulances](#). Transportation Science, 55(2), 275-296. DOI: 10.1287/trsc.2020.1023
4. **White, V. M.**, Molfenter, T., Gustafson, D. H., Horst, J., Greller, R., Kim, J. S., ... & Toy, A. (2020). [NIATx-TI versus typical product training on e-health technology implementation: a clustered randomized controlled trial study protocol](#). Implementation Science, 15(1), 1-12. DOI: 10.1186/s13012-020-01053-4

5. 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](#). IEEE Journal of biomedical and health informatics, 25(1), 189-200, Jan. 2021. DOI: 10.1109/JBHI.2020.2992973

Conference Proceedings

6. 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.

Working Papers

7. **White, V. M.**, Albert, L. A. Discrete event simulation for county-level addiction and criminal policy changes. (Working paper).
8. **White, V. M.**, Albert, L. A. Optimization for Informing Policing. (Working paper).
9. **White, V. M.**, Hunt, J., Green, B. Introducing PEI* a More Operationally Realistic Hot-spot Policing Metric. (Working paper).
10. **White, V. M.**, Applegarth, M., Hudgins, C., Hunt, J. Results from the 2021 NIJ Recidivism Forecasting Challenge (Working paper).
11. Hudgins, C., **White, V. M.**, Martin, E. Literature Review on Implementation Science in Criminal Justice (Working paper).

GRANTS

External

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
<i>Conference Presentation Fund - University of Wisconsin-Madison</i>	

PRESENTATIONS

*** Indicates Presenting Author(s)**

Conference And Seminar Presentations

12. **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.
13. Lee, S.*, Wei, S., **White, V.**, Bain, P., Baker, C., Li, J. A Semi-Supervised Classification Model for Predicting Opioid Usage After Total Knee and Hip Replacement Surgery. *2019 IEEE 15th International Conference on Automation Science and Engineering*. Aug. 22 – 26. Vancouver, BC, Canada.
14. 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.

15. 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

16. "Operations Research Meets Criminal Justice." May 2021. *Let's RAP! Series*. National Institute of Justice, Washington, D.C. (Virtual).
17. "Amazon Devices Fulfillment Center Allocation Solver." Aug. 2020. *Internship Project Report Out*. Amazon Inc. Seattle, WA. (Virtual).
18. "Preliminary MARI Outcomes Analysis." Feb. 2020 & Jun. 2019 at the *MARI Operations Team Monthly Meeting*. Madison, WI.
19. "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.
20. "Predicting Opioid Prescription Level Post TJR Surgery." (2018). At the *Opioid Task Force Meeting*. Jan. 11. Madison, WI.
21. "[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

22. **White, V. M.***, Meredith, M.*, Albert, L. Evaluation of a Two-Year Policing Initiative. *2019 INFORMS Annual Meeting*. Oct. 20 – 23. Seattle, Washington.
23. 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
24. **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

Criminal Justice Research – Research Assistant Program Oct. 2020 to Present
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

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, MARI, which will be used for optimization models in illicit drug interdiction and police scheduling
- Creating graphs and simple statistical analysis done with RStudio, **see [18, 23]**
- Developed causal inference methods to evaluate 6-month recidivism outcomes, **see [1]**
- Developed DES simulation to understand county-level outcomes of the program, **see [7]**

- Future work: Police illicit drug interdiction modeling, via max flow models, to be built in Python or Julia

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 \[4\]](#)
- 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 \[19\]](#)

Stochastic Ambulance Dispatching Modeling – Research Assistant

May 2018 to Jul. 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 \[3\]](#)

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 \[20\]](#) (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 \[5\]](#)

Undergraduate Research Assistant, [see \[6, 14, 15, 21,24\]](#)

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 (TA): Created and facilitated weekly discussion sections to summarize and practice course material. I held twice-weekly office hours and provided regular feedback to students. Courses ranged from 40 students to over 100 students.

- 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 2021
“Time-Series Modeling for Discrete Event Simulation Enhancement”
- 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

Workshops:

- Attendee at [NSF/UTA Decision Analytics for Dynamic Policing Workshop](#), May 9-10, 2019

Seminars:

- Delta Program Seminar — Research Mentor Training, Summer 2019

Courses:

- Delta Program Book club — Black Brown Bruised by Ebony McGee, Spring 2021
- CIRTl Network course — Advancing Learning Through Evidence-Based STEM Teaching, Spring 2021
- CIRTl Network course — Diversity in the College Classroom, Spring 2019

SERVICE

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)

Cluster Member of Student and Alumni Affairs (SAA) Cluster Dec. 2020 to Present
Industrial and Systems Engineering Department – University of Wisconsin-Madison

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

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](#)

Press and News

- [MARI reduces six month recidivism odds](#) – The Capital Times News – Madison, WI
- [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

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 [17]

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
- Assisted in updating and upholding all safety procedures
- Completed 85 Washington Ergonomic Assessments for various work cells

ORGANIZATIONS AND INTERESTS

INFORMS: Women in INFORMS, MIF, Optimization Society, Public Sector OR

NSPN – National Science Policy Network

CaSP – Catalysts for Science Policy – University of Wisconsin–Madison

Institute of Industrial and Systems Engineers

Tau Beta Pi – Engineering Honors Society

Pi Beta Phi – Fraternity for Women

Philharmonic Chorus of Madison