

# Arman Oganisian, PhD

Assistant Professor of Biostatistics

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✉ arman\_oganisian@brown.edu

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## Education

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| 2021 | University of Pennsylvania<br>Ph.D. in Biostatistics<br>Advisors: Nandita Mitra and Jason Roy<br>Committee: Russell Shinohara, Dylan Small, Edward I. George | Philadelphia, PA |
| 2018 | University of Pennsylvania<br>M.S. in Biostatistics  | Philadelphia, PA |
| 2013 | Providence College<br>B.A. in Quantitative Economics, <i>summa cum laude</i><br>Minor in Mathematics; Liberal Arts Honors Program.                           | Providence, RI   |

## Employment

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|------------|---|------------------|
| 2021-pres. | Brown University<br>Assistant Professor, Tenure Track. Department of Biostatistics.           | Providence, RI   |
| 2017-2021  | University of Pennsylvania<br>Associate Fellow, Leonard Davis Institute for Health Economics. | Philadelphia, PA |
| 2015-2016  | Analysis Group<br>Senior Analyst - Health economics and outcome research (HEOR).              | Boston, MA       |
| 2013-2015  | Analysis Group<br>Analyst - HEOR.   | Boston, MA       |

## Awards

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| 2025 | <b>Dean's Award for Excellence in Research Collaboration</b><br>School of Public Health, Brown University.   |
| 2022 | <b>Salomon Faculty Research Award</b><br>Awarded by Office of the Vice President for Research (OVPR), Brown University.  |
| 2021 | <b>Saul Winegrad Award for Outstanding Dissertation</b><br>Awarded by University of Pennsylvania, Biomedical Graduate Studies.   |
| 2020 | <b>ENAR Distinguished Student Paper Award</b><br>Awarded by International Biometric Society Eastern North American Region's (ENAR) at 2020 ENAR Spring Meeting in Nashville, TN. |
| 2020 | <b>ICHPS Travel Award</b><br>Awarded by International Conference on Health Policy Statistics (ICHPS) during the 2020 meeting in San Diego, CA.                                   |

## Funding

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|-----------|---|
| 2023-2026 | PCORI ME2023C13134 - Bayesian Machine Learning for Causal Inference in EHR data with Missing Covariates<br>Role: co-PI. 20% FTE.  |
| 2022-2025 | PCORI MNJ3PA7MXFN6 - Statistical Methods for Optimizing Dynamic Patient-Level Treatment and Monitoring Strategies<br>Role: Subcontract PI; PI: Jason Roy. 15% FTE.                                |
| 2021-2026 | NIH R01 AI167694 - Data Science for Decision Support in the HIV Care Cascade<br>Role: Co-investigator. PI: Joseph Hogan. 15% FTE.   |
| 2022-2027 | NIH R01 R01AG078759 - Benefits and Harms of Long-term Osteoporosis Pharmacotherapy: Impact of Treatment Length, Type, Switching, and Holidays.<br>Role: Co-investigator. PI: Kaley Hayes. 5% FTE. |
| 2024-2029 | NIH R01 - Post-Acute Care Medication Use and Functional Recovery in Heart Failure.<br>Role: Co-investigator. PIs: Goyal Parag; Andrew Zullo. 7.5% FTE.  |
| 2024-2029 | NIH R01 R01AG088522 - Prescribing Cascades among Nursing Home Residents with ADRD.<br>Role: Co-investigator. PI: Andrew Zullo. 10% FTE.   |

## Publications

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+mentee; \*senior/co-senior author.

### Under Review/Revision

- 1 +Fernández-Morales, E., \***Oganisian, A.** & \*Lee, Y. (2025). Bayesian shrinkage priors for penalized synthetic control estimators in the presence of spillovers.  
<https://arxiv.org/abs/2501.08231>
- 2 Hsieh, H.-C., Lu, H., Gantenberg, J., **Oganisian, A.**, Eaton, C., & Howe, C. (2025). Non-random selection without type 1 or 2 selection bias.
- 3 Khan, M., Joyce, N., Pfeiffer, M., Riester, M., Ott, B., **Oganisian, A.**, Curry, A., Margolis, S., & Zullo, A. (2025). Effects of initiating different antidepressant subclasses on motor vehicle crash risk among older adults with depression.
- 4 **Oganisian, A.** (2025). Invited book review of “Bayesian Precision Medicine” by Peter F. Thall.
- 5 Sendhil, S., Cadarette, S., Aggarwal, S., Berry, S., Zullo, A., **Oganisian, A.**, & Hayes, K. (2025). Types of follow-on therapy initiation after denosumab discontinuation among medicare beneficiaries.
- 6 **Oganisian, A.** (2024). Considerations for estimating causal effects of informatively timed treatments.
- 7 **Oganisian, A.**, Hogan, J., Sang, E., DeLong, A., Mosong, B., Fraser, H., & Mwangi, A. (2024). Decision-support for hiv care retention: A case study in bayesian causal modeling with incomplete information. <https://arxiv.org/abs/2410.22481>
- 8 Xie, K., Korzun, J., Zhou, D., Ghosn, N., Lavelle, S., **Oganisian, A.**, Acton, E., Gelfand, M., Roth, D., Litt, B., & Ellis, C. (2024). Comparative effectiveness of anti-seizure medications in emulated trials using medical informatics.

## Statistical Methodology

- 9 +Ji, H., & \***Oganisian, A.** (2025). causalBETA: An R package for bayesian semiparametric casual inference with event-time outcomes. *Observational Studies (In Press)*.  
<https://doi.org/10.48550/arXiv.2310.12358>
- 10 **Oganisian, A.**, Girard, A., Steingrimsson, J. A., & Moyo, P. (2024). A bayesian framework for causal analysis of recurrent events with timing misalignment. *Biometrics*, 80(4).  
<https://doi.org/10.1093/biomtc/ujae145>
- 11 **Oganisian, A.**, Getz, K. D., Alonzo, T. A., Aplenc, R., & Roy, J. A. (2024). Bayesian semiparametric model for sequential treatment decisions with informative timing. *Biostatistics*, 25(4), 947–961. <https://doi.org/10.1093/biostatistics/kxad035>
- 12 **Oganisian, A.**, Mitra, N., & Roy, J. (2022). Hierarchical bayesian bootstrap for heterogeneous treatment effect estimation. *The International Journal of Biostatistics*.  
<https://doi.org/10.1515/ijb-2022-0051>
- 13 **Oganisian, A.**, Mitra, N., & Roy, J. A. (2021). A bayesian nonparametric model for zero-inflated outcomes: Prediction, clustering, and causal estimation. *Biometrics*, 77(1), 125–135. <https://doi.org/10.1111/biom.13244>
- 14 **Oganisian, A.**, & Roy, J. A. (2021a). Nonparametric bayes: A bridge between cultures. *Observational Studies*, 7(1), 175–178. <https://doi.org/10.1353/obs.2021.0005>
- 15 **Oganisian, A.**, & Roy, J. A. (2021b). A practical introduction to bayesian estimation of causal effects: Parametric and nonparametric approaches. *Statistics in Medicine*, 40(2), 518–551. <https://doi.org/10.1002/sim.8761>
- 16 **Oganisian, A.**, & Roy, J. A. (2020). Invited discussion - bayesian regression tree models for causal inference: Regularization, confounding, and heterogeneous effect. *Bayesian Analysis*, 998–1006. <https://doi.org/10.1214/19-BA1195>
- 17 Hubbard, R. A., Huang, J., Harton, J., **Oganisian, A.**, Choi, G., Utidjian, L., Eneli, I., Bailey, L. C., & Chen, Y. (2019). A bayesian latent class approach for ehr-based phenotyping. *Statistics in Medicine*, 38(1), 74–87. <https://doi.org/10.1002/sim.7953>
- 18 **Oganisian, A.** (2019). Chirp: Chinese restaurant process mixtures for regression and clustering. *The Journal of Open Source Software*, 4, 1287.  
<https://doi.org/10.21105/joss.01287#>

## Collaborative

- 19 Hayes, K., Zullo, A., Berry, S., **Oganisian, A.**, Aggarwal, S., Adegboye, M., & Cadarette, S. (2025). Osteoporosis medication use over time in the united states and canada. *Osteoporosis International*. <https://link.springer.com/article/10.1007/s00198-025-07484-3>
- 20 Hayes, K. N., Sendhil, S. R., Aggarwal, S., Zullo, A. R., Berry, S. D., **Oganisian, A.**, Adegboye, M., & Cadarette, S. (2025). Real-world differences in denosumab persistence, reinitiation, and switching among cohorts of older adults in canada and the united states. *Journal of Bone and Mineral Research Plus (In Press)*.
- 21 Hayes, K. N., **Oganisian, A.**, & Kiel, D. P. (2024). Improving the value and interpretation of observational studies comparing treatment effects of osteoporosis medications depends on standardized reporting of methods. *Journal of Bone and Mineral Research*, 39(7), 807–809. <https://doi.org/10.1093/jbmr/zjae099>
- 22 Li, Y., Vader, D. T., **Oganisian, A.**, Boge, C. L. K., Hayes, M., Newman, A., Olson, T., Freedman, J., Elgarten, C. W., & Fisher, B. T. (2023). Effect of cytomegalovirus infection on post-transplant hospitalization days among children undergoing allogeneic hematopoietic cell transplantation: A marginal structural model approach. *Pediatric Transplantation*, e14526. <https://doi.org/10.1111/petr.14526>

- 23 Huang, A. W., Haslberger, M., Coulibaly, N., Galárraga, O., **Oganisian, A.**, Belbasis, L., & Panagiotou, O. A. (2022). Multivariable prediction models for health care spending using machine learning: A protocol of a systematic review. *Diagnostic and Prognostic Research*, 6(1), 1–5.
- 24 Harrigan, J. J., Abdallah, H., Clarke, E. L., **Oganisian, A.**, Roy, J. A., Lautenbach, E., Reese, E., Wernovsky, M., Tolomeo, P., Morawski, Z., Jacob, J., Grippi, M. A., & Kelly, B. J. (2021). Respiratory microbiome disruption and risk for ventilator-associated lower respiratory tract infection [ciab678]. *Clinical Infectious Diseases*.  
<https://doi.org/10.1093/cid/ciab678>
- 25 Takvorian, S. U., **Oganisian, A.**, Mamtani, R., Mitra, N., Shulman, L. N., Bekelman, J. E., & Werner, R. M. (2020). Association of Medicaid Expansion Under the Affordable Care Act With Insurance Status, Cancer Stage, and Timely Treatment Among Patients With Breast, Colon, and Lung Cancer. *JAMA Network Open*, 3(2).  
<https://doi.org/10.1001/jamanetworkopen.2019.21653>
- 26 Harrison, J. M., **Oganisian, A.**, Grande, D. T., Mitra, N., Chhabra, M., & Chaiyachati, K. H. (2020). Economic outcomes of insurer-led care management for high-cost medicaid patients. *The American journal of managed care*, 26(7), 310–316.  
<https://doi.org/10.37765/ajmc.2020.43769>
- 27 Singh, P., Forman, H., Adamson, A. S., Mostaghimi, A., Ogdie, A. R., **Oganisian, A.**, & Barbieri, J. S. (2019). Impact of industry payments on prescribing patterns for tumor necrosis factor inhibitors among medicare beneficiaries. *Journal of General Internal Medicine*, 34(2), 176–178. <https://doi.org/10.1007/s11606-018-4698-x>
- 28 Grandhi, N., Mohiuddin, J., **Oganisian, A.**, Manjunath, S., Mitra, N., Plastaras, J., Metz, J., Ben-Josef, E., & Wojcieszynski, A. (2019). Association of radiation dose with local failure in hepatocellular carcinoma (hcc). *International Journal of Radiation Oncology\*Biophysics*, 105(1, Supplement), E219–E220.  
<https://doi.org/10.1016/j.ijrobp.2019.06.1970>
- 29 Vekeman, F., Pina-Garza, J. E., Cheng, W. Y., Tuttle, E., Giguere-Duval, P., **Oganisian, A.**, Damron, J., Duh, M. S., Shen, V., Saurer, T. B., Montouris, G. D., & Isojarvi, J. (2019). Development of a classifier to identify patients with probable lennox-gastaut syndrome in health insurance claims databases via random forest methodology. *Current Medical Research and Opinion*, 35(8), 1415–1420. <https://doi.org/10.1080/03007995.2019.1595552>
- 30 Wan, J., **Oganisian, A.**, Spieker, A. J., Hoffstad, O. J., Mitra, N., Margolis, D. J., & Takeshita, J. (2019). Racial/ethnic variation in use of ambulatory and emergency care for atopic dermatitis among us children. *Journal of Investigative Dermatology*, 139(9), 1906–1913.e1. <https://doi.org/10.1016/j.jid.2019.02.024>

## Invited Talks

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| 03/2025 | <b>Eastern North American Region (ENAR) 2025. New Orleans, LA.</b><br><i>Causal Inference with Recurrent Event Outcomes: Estimands, Identification, and Bayesian Inference</i>            |
| 10/2024 | <b>2024 NYU Langone Biostatistics Symposium: Advances in Causal Inference Methods. New York, NY.</b><br><i>Bayesian Semiparametric Inference for Dynamic Treatment Strategies</i>         |
| 11/2024 | <b>Statistical and Quantitative Sciences Seminar (SQSS) at Takeda Pharmaceuticals. Boston, MA.</b><br><i>Bayesian Causal Inference in Clinical Trials with Dynamic Treatment Regimens</i> |

## Invited Talks (continued)

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- 09/2024 **Emory University, Department of Biostatistics and Bioinformatics. Atlanta, GA.**  
*Bayesian Semiparametric Inference for Dynamic Treatment Strategies with Informative Timing*
- 09/2024 **Banff International Research Station (BIRS) Workshop 2024. Oaxaca, Mexico.**  
*Bayesian Semiparametrics for Sequential Decision-Making: Applications in Acute Myeloid Leukemia*
- 08/2024 **Joint Statistical Meetings (JSM) 2024. Portland, OR.**  
*Bayesian Semiparametrics for Sequential Decision-Making with Incomplete Information: Applications in Acute Myeloid Leukemia*
- 07/2024 **International Society for Bayesian Analysis (ISBA) 2024. Venice, Italy.**  
*Bayesian Models for Counterfactual Prediction and Optimization with Incomplete Information: Applications in HIV Care Retention*
- 03/2024 **International Workshop on HIV and Hepatitis Observational Databases (IWHOD) 2024. Vilamoura, Portugal.**  
*Bayesian ML for Predicting Return-Time Outcomes for HIV Care Retention*
- 12/2023 **Computational and Methodological Statistics (CMstatistics) 2023. Berlin, Germany.**  
*Bayesian semiparametric models for dynamic treatment rules with incomplete time-varying covariates*
- 11/2023 **University of Massachusetts at Amherst, Department of Mathematics & Statistics. Amherst, MA.**  
*Bayesian Semiparametric Causal Inference for Sequential Treatment Decisions with Incomplete Information*
- 08/2023 **Joint Statistical Meetings (JSM) 2023. Toronto, Canada.**  
*Bayesian Semiparametric Models for Sequential Treatments Strategies with Informative Timing*
- 07/2023 **Econometrics & Statistics (EcoSta) 2023. Tokyo, Japan.**  
*Bayesian semiparametric models for informatively timed, dynamic treatments with incomplete covariate trajectories*
- 05/2023 **University of Minnesota, Institute for Research in Statistics and Applications (IRSA). Minneapolis, MN.**  
*Bayesian Modeling and Computation in Causal Inference – Applications in Sequential Decision-Making*
- 03/2023 **Eastern North American Region (ENAR) 2023. Nashville, TN.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in with Informative Timing*
- 01/2023 **International Conference on Health Policy Statistics (ICHPS) 2023. Phoenix, AZ.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in with Informative Timing*
- 12/2022 **Computational and Methodological Statistics (CMstatistics) 2022. London, United Kingdom.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in with Informative Timing*
- 10/2022 **BIO-PhRMA Workshop on Advancing Analytical Methodologies for Unmeasured Confounders in RWE. Virtual.**  
*Bayesian Methods for Causal Inference: Using Priors to assess Sensitivity to Unmeasured Confounding*

## Invited Talks (continued)

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- 10/2022 **International Biometrics Society (IBS) Journal Club. Virtual.**  
*Discussion of “Zero-Inflated Beta Distribution Regression Modeling” (invited discussant)*
- 08/2022 **Joint Statistical Meetings (JSM) 2022. Washington DC, USA.**  
*Cultural fit of Nonparametric Bayes (invited panel discussion)*
- 07/2022 **International Society for Bayesian Analysis (ISBA) 2022. Montreal, Canada.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in with Informative Timing*
- 07/2022 **International Biometrics Conference (IBC) 2022. Riga, Latvia.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in with Informative Timing*
- 06/2022 **Statistical Society of Canada (SSC) 2022 annual meeting. Virtual.**  
*Hierarchical Bayesian Bootstrap for Heterogeneous Treatment Effect Estimation*
- 02/2022 **Center for Causal Inference, University of Pennsylvania. Virtual.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in Continuous Time*
- 01/2022 **Department of Biostatistics, Vanderbilt University. Virtual.**  
*Hierarchical Bayesian Bootstrap for Heterogeneous Treatment Effect Estimation*
- 12/2021 **Computational and Methodological Statistics (CMStatistics) 2021. London, UK.**  
*Hierarchical Bayesian Bootstrap for Heterogeneous Treatment Effect Estimation*
- 05/2021 **Novartis - Advanced Methods and Data Science Forum. Virtual.**  
*Bayesian Estimation of Causal Effects: Parametric and Nonparametric Approaches*
- 01/2021 **University of Washington, Department of Biostatistics. Virtual.**  
*A Bayesian nonparametric model for zero-inflated outcomes: prediction, clustering, and causal inference.*
- 01/2021 **Brown University, Department of Biostatistics. Virtual.**  
*A Bayesian nonparametric model for zero-inflated outcomes: prediction, clustering, and causal inference.*
- 11/2020 **Center for Causal Inference, University of Pennsylvania. Virtual.**  
*Hierarchical Bayesian Bootstrap for Heterogeneous Treatment Effect Estimation*
- 08/2020 **Stan Conference (StanCon). Virtual.**  
*Bayesian Causal Inference in Stan: Partial Pooling and Sensitivity Analysis*
- 06/2020 **Department of Population Health Science and Policy. Icahn School of Medicine at Mt. Sinai. Virtual.**  
*Bayesian Nonparametric Causal Estimation with Zero-Inflated Outcomes*
- 01/2020 **International Conference on Health Policy Statistics (ICHPS). San Diego, CA.**  
*An all-in-one Bayesian nonparametric model for medical cost prediction, clustering, and causal estimation*

## Service

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### Paper Referee Service

*Biometrics, Biostatistics, Statistics in Medicine, Journal of the American Statistical Association, Journal of the Royal Statistical Society: Series C, International Journal of Biostatistics, Observational Studies, Journal of Causal Inference, American Journal of Epidemiology, Econometrics and Statistics*



## Service (continued)

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### Grant Review Service

- 2024 Scientific Reviewer, Patient-Centered Outcomes Research Institute (PCORI).
- 2024 Scientific Reviewer, National Institutes of Health (NIH), National Institute of Neurological Disorders and Stroke (NINDS).
- 2024 Scientific Reviewer, CANSSI (Canadian Statistical Sciences Institute).

### School and Departmental Service

- 2023 Faculty search committee. Department of Epidemiology, Brown University.
- 2023 Faculty search committee. Department of Biostatistics, Brown University.
- 2022-pres. Masters in Public Health (online) Admission Committee. Brown School of Public Health.
- 2021-pres. Academic Programs Committee, Department of Biostatistics, Brown University.
- 2021-2023 PhD Admission Committee, Department of Biostatistics, Brown University.
- 2022-pres. Social Media Faculty Coordinator, Department of Biostatistics, Brown University.

### Conference Service

- 2025 Chair, Student Committee. International Conference on Health Policy Statistics (ICHPS).
- 2024 Student Paper Award Committee. Eastern North American Region (ENAR).
- 2023 Scientific Committee. Bayesian Young Statisticians Meeting (BAYSM).  
Outreach Committee. International Conference on Health Policy Statistics (ICHPS).
- 2022 Student Poster Award Committee. New England Statistical Symposium (NESS).
- 2021 Program Committee. NeurIPS Workshop “Your Model is Wrong: Robustness and misspecification in probabilistic modeling”
- 2021 Program Committee. ICML Workshop “The Neglected Assumptions In Causal Inference”
- 2020 Program Committee. NeurIPS Workshop “Consequential Decision Making in Dynamic Environments”

### Organized Conference Sessions

- 12/2023 Invited Session Organizer and Chair for “Bayesian Nonparametrics and Machine Learning Methods for Causal Inference”. Computational and Methodological Statistics (CMStatistics) 2023.
- 12/2022 Invited Session Organizer and Chair for “Bayesian nonparametrics for causal inference: Part II”. Computational and Methodological Statistics (CMStatistics) 2022.
- 07/2022 Invited Session Organizer and Chair for “Recent Developments in Probabilistic Machine Learning Methods for Causal Inference”. International Biometrics Conference (IBC) 2022.
- 05/2021 Co-organizer. “Frontiers of Causal Inference in Data Science: Perspectives from Leaders in Tech and Academia”. University of Pennsylvania.
- 12/2021 Session Organizer. “Causal inference challenges in health policy decision making”. CMStatistics.
- 10/2020 Session Chair, “Causal Inference Methods for Health Policy Research. International Conference on Health Policy Statistics”. San Diego, CA.

### Other Committee/Board Memberships

- 2021-2022 Stan Governing Body (elected to 1-year term). <https://mc-stan.org/>.

## Service (continued)

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### Professional Memberships

2017-pres. American Statistical Association  
2017-pres. International Biometric Society, Eastern North American Region (ENAR)

## Teaching and Advising

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### Course Instruction at Brown University

Spring, 2024-2025 PHP2530: Bayesian Statistical Methods  
Fall, 2021-2024 PHP2515: Fundamentals of Probability and Statistical Inference.

### Summer Institutes and Short Courses

2019 Center for Causal Inference Summer Institute, UPenn.  
Instructor; instrumental variables computing session at annual summer institute hosted by Center for Causal Inference.

### Advising

Esteban Fernandez, PhD Biostatistics, 2026.  
Valentin Kirilenko, ScM Biostatistics, 2026.  
Yuzhou Peng, ScM Biostatistics, 2026.  
Zhaoxiang Ding, ScM Biostatistics, 2025.  
Tova Ibbotson, ScM Biostatistics, 2024.  
Zihan Zhou, ScM Biostatistics, 2024.  
Anthony Girard, ScM Biostatistics, 2023.  
Nancy Liu, ScM Biostatistics, 2023.

### PhD Dissertation Committee

Chunnan Liu, Department of Biostatistics, 2028  
Molly Stettenbauer, Dept. of Health Services, Policy, and Practice, 2027  
Yalin Deng, Dept. of Health Services, Policy, and Practice, 2027  
Gauri Kamat, Department of Biostatistics, 2024.  
Nicholas Lewis, Department of Biostatistics, 2025  
Meghan Cupp, Department of Epidemiology, 2025  
Blake Hansen, Department of Biostatistics, 2025

### Guest Lectures

2022 PHP2610 Causal Inference and Missing Data, Brown.  
Lecture title: Bayesian Inference for Causal effects of Dynamic Treatment Rules.  
2020 BSTA790 Causal Inference in Biomedical Research, UPenn  
Lecture title: Overview of Bayesian Methods for Causal Inference.  
2020 BSTA670 Programming and Computation for Biomedical Data Science, UPenn  
Lecture title: Bayesian Computation: Metropolis-Hastings Samplers and Monte Carlo Integration.