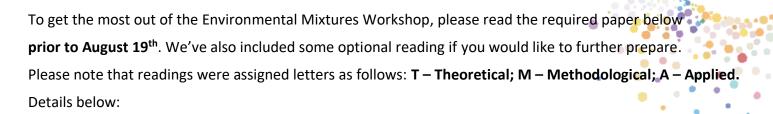
Pre-course Reading Workshop on Analyzing Mixtures in Environmental Health Studies



Required reading

The workshop will be using the dataset described in Mitro et al. 2016:

1. Mitro SD, Birnbaum LS, Needham BL, Zota AR. <u>Cross-sectional Associations between Exposure to Persistent Organic Pollutants and Leukocyte Telomere Length among U.S. Adults in NHANES, 2001–2002</u>. Environmental Health Perspectives. 2016;124(5):651-658. DOI:10.1289/ehp.1510187.

Optional reading: Primary

This paper gives a good introduction to and overview of statistical methods.

- 1. Gibson EA, Goldsmith J, Kioumourtzoglou MA. <u>Complex Mixtures, Complex Analyses: An Emphasis on Interpretable Results</u>. Current environmental health reports. 2019;6(2):53-61. [Review Paper]
- 2. Carrico C, Gennings C, Wheeler DC, Factor-Litvak P. <u>Characterization of weighted quantile sum regression for highly correlated data in a risk analysis setting</u>. Journal of Agricultural, Biological, and Environmental Statistics. 2015;20(1):100-20. [M]
- Chapters 6.2 (Lasso) and 10 (PCA and clustering):
 James G, Witten D, Hastie T, Tibshirani R. <u>An introduction to statistical learning with applications in R</u>. *New York: Springer*. 2013. [M]
- 4. BKMR modeling framework: Bobb JF, Valeri L, Claus Henn B, Christiani DC, Wright RO, Mazumdar M, Godleski JJ, Coull BA. Bayesian kernel machine regression for estimating the health effects of multi-pollutant mixtures. Biostatistics (Oxford, England). 2015;16(3):493-508. DOI:10.1093/biostatistics/kxu058. [M]
- 5. Software implementation of BKMR methods in R: Bobb JF, Claus Henn B, Valeri L, Coull BA. <u>Statistical software for analyzing the health effects of multiple concurrent exposures via Bayesian kernel machine regression</u>. *Environmental Health*. 2018;17(1):67. DOI: 10.1186/s12940-018-0413-y. [A]





Optional reading: Secondary

- Curtin P, Kellogg J, Cech N, Gennings C. <u>A random subset implementation of weighted quantile sum (WQS_{rs}) regression for analysis of high-dimensional mixtures.</u> Communications in Statistics Simulation and Computation. 2019;1-16. DOI: 10.1080/03610918.2019.1577971. [A]
- 2. Fan J, Li R. <u>Variable selection via nonconcave penalized likelihood and its oracle properties</u>. *Journal of the American Statistical Association*. 2001;96(456):1348-1360. **[T]**
- 3. Tibshirani R. Regression shrinkage and selection via the lasso. Journal of the Royal Statistical Society: Series B (Methodological). 1996;58(1):267-288. [T]
- 4. Yuan M, Lin Y. Model selection and estimation in regression with grouped variables. *Journal of the Royal Statistical Society: Series B (Methodological)*. 2006;68(1):49-67. **[T]**
- 5. Zhang C. <u>Nearly unbiased variable selection under minimax concave penalty</u>. *The Annals of Statistics*. 2010;38(2):894-942. **[T]**
- 6. Liu SH, Bobb JF, Lee KH, Gennings C, Claus Henn B, Bellinger D, Austin C, Schnaas L, Tellez-Rojo MM, Hu H, Wright RO, Arora M, Coull BA. <u>Lagged kernel machine regression for identifying time windows of susceptibility to exposures of complex mixtures</u>. <u>Biostatistics</u>. 2018;19(3):325-341. **[M]**
- 7. Liu SH, Bobb JF, Claus Henn B, Gennings C, Schnaas L, Tellez-Rojo MM, Bellinger D, Arora M, Wright RO, Coull BA.

 <u>Bayesian varying coefficient kernel machine regression to assess neurodevelopmental trajectories associated</u>
 <u>with exposure to complex mixtures</u>. Stat Med. 2018;37(30):4680-4694. [M]
- 8. Liu JZ, Lee J, Lin PI, Valeri L, Christiani DC, Bellinger D, Wright RO, Mazumdar MM, Coull BA. <u>A Cross-validated Ensemble Approach to Robust Hypothesis Testing of Continuous Nonlinear Interactions: Application to Nutrition-Environment Studies</u>. arXiv:1904.10918. 2019. [M]
- 9. Antonelli J, Mazumdar MM, Bellinger D, Christiani DC, Wright RO, Coull BA. <u>Estimating the health effects of environmental mixtures using Bayesian semiparametric regression and sparsity inducing priors</u>. arXiv:1711.11239. 2017. **[M]**

