

# Nicholas J. Seewald

## *Curriculum Vitae*

### CONTACT INFORMATION

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### EDUCATION

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| <i>Expected</i><br>2020 | <b>Doctor of Philosophy</b> , Statistics<br>UNIVERSITY OF MICHIGAN, Ann Arbor, Michigan<br>Passed qualifying exams in May 2016                              |
| MAY 2018                | <b>Master of Arts</b> , Statistics<br>UNIVERSITY OF MICHIGAN, Ann Arbor, Michigan   |
| MAY 2015                | <b>Master of Science</b> , Biostatistics<br>UNIVERSITY OF MICHIGAN, Ann Arbor, Michigan   |
| MAY 2013                | <b>Bachelor of Science</b> <i>cum laude</i> , Mathematics with Life Science<br>UNIVERSITY OF NOTRE DAME, Notre Dame, Indiana<br>Glynn Family Honors Program |

### RESEARCH EXPERIENCE

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#### Graduate Student Research Assistant, University of Michigan

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| <i>Current -</i><br>JUL 2016 | <b>Supervisor:</b> Daniel Almirall, Ph.D. <ul style="list-style-type: none"><li>- Developed sample size methods for sequential, multiple-assignment randomized trials in which the primary aim is to compare two embedded dynamic treatment regimes on a continuous, repeated-measures outcome.</li></ul>  |
| SEP 2015 -<br>JUL 2016       | <b>Supervisor:</b> Susan A. Murphy, Ph.D. <ul style="list-style-type: none"><li>- Managed complex, intensive longitudinal data arising from <i>HeartSteps</i>, a micro-randomized trial involving smartphone-based interventions aimed at increasing physical activity in sedentary adults (PI: Predrag Klasnja, Ph.D.).</li><li>- Performed primary analyses for HeartSteps to assess a proximal, marginal causal effect of providing the intervention versus not on participant step count.</li></ul>  |
| JAN 2014 -<br>AUG 2015       | <b>Supervisor:</b> Kelley M. Kidwell, Ph.D. <ul style="list-style-type: none"><li>- Developed a web application for sizing sequential, multiple-assignment, randomized trials with binary or continuous outcomes in which the primary goal is to compare two embedded dynamic treatment regimes.</li><li>- Helped derive sample size methods for use in aforementioned application.</li><li>- Collaborated with investigators in the University of Michigan Health System, School of Pharmacy, and Department of Psychology on data analysis projects involving cancer, genetics, and obesity.</li></ul> |

SEP 2013 - | **Supervisor:** Gonçalo Abecasis, D.Phil.  
JAN 2014 | – Worked on aligning whole-genome samples from a large-scale case control study on age-related macular degeneration.

### **Undergraduate Honors Thesis**, Department of Mathematics, University of Notre Dame

APR 2012 - | ENTROPY AND COUNTING  
APR 2013 | **Supervisor:** David Galvin, Ph.D.  
– Studied properties of the entropy of a random variable and its combinatorial implications.

### **Undergraduate Research**, Department of Chemistry and Biochemistry, University of Notre Dame

JAN 2010 - | **Supervisor:** Seth N. Brown, Ph.D.  
MAY 2012 | – Synthesized a number of chiral boron molecules for analysis via NMR and X-Ray crystallography to investigate bond angles at the boron center.  
– Studied NMR kinetics of reactions between molybdenum tris(catecholate) and nitrogen-containing compounds to investigate a probable reaction mechanism.

## TEACHING EXPERIENCE

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### **Teaching Assistant**, Summer Program in Quantitative Methods of Social Research, Inter-university Consortium for Political and Social Research, Ann Arbor, MI

SUMMER 2018 | Introduction to the R Statistical Computing Environment  
Instructor: John Fox, Ph.D.  
– Introduction to the R language and environment, including basic programming concepts, statistical modeling, and graphics.  
– Attended lectures and held daily office hours  
Multilevel Models I: Introduction and Application  
Instructor: Mark Manning, Ph.D.  
– Introduction to multilevel (mixed effects) models aimed at social scientists, focusing on the questions one can ask and answer with such models. Emphasis was given to construction of models and interpretation of results, with some coverage of fitting methods (e.g., REML, quadrature, etc.).  
– Attended lectures, held daily office hours, and graded class projects.

### **Graduate Student Instructor**, Department of Statistics, University of Michigan

SPRING 2018 | **STATS 250:** Introduction to Statistics and Data Analysis  
Instructor: Brenda Gunderson, Ph.D.  
– Undergraduate-level introductory course in probability, statistics, and data analysis, focusing on concepts such as graphical displays and numerical summaries of data, hypothesis testing, and confidence intervals.  
– Taught bi-weekly interactive labs to two sections of about 15 and 30 students, emphasizing both broad conceptual ideas and data analysis in R (using R Commander).  
– Held bi-weekly office hours, and graded pre-labs, homework, and exams.

WINTER 2018	<p><b>STATS 415: Data Mining</b> Instructor: Liza Levina, Ph.D.</p> <ul style="list-style-type: none"> <li>- Undergraduate-level course in data mining / machine learning geared towards statistics and data-science majors. Topics included regression, classification, shrinkage, non-linear methods (e.g., splines), tree-based methods, and clustering.</li> <li>- Designed and taught weekly interactive labs to a section of 40 students, discussing R implementation of methods described in lecture.</li> <li>- Held weekly office hours and graded homework and exams.</li> </ul>
FALL 2017	<p><b>STATS 500: Statistical Learning I: Regression</b> Instructor: Brian Thelan, Ph.D.</p> <ul style="list-style-type: none"> <li>- Introductory regression course for students in the Masters program of Applied Statistics. Covered linear regression through shrinkage methods; included an introduction to R.</li> <li>- Held weekly office hours and graded weekly homework for 107 students.</li> </ul>

**Undergraduate Teaching Assistant**, Department of Biological Sciences, University of Notre Dame

SPRING 2012	<p><b>BIOS 40411: Biostatistics</b> Instructor: Gary Lamberti, Ph.D.</p> <ul style="list-style-type: none"> <li>- Introduction to statistical principles—including inference, ANOVA, regression, and non-parametrics—with biological applications</li> <li>- Helped design and facilitate weekly tutorial sessions structured around data analysis in R</li> </ul>
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**OTHER EXPERIENCE**

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SEPT. 2018 - DEC. 2018	<p><b>Graduate Student Consultant</b>, Consulting for Statistics, Computing, and Analytics Research (CSCAR), University of Michigan</p> <p>-</p>
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**PUBLICATIONS**

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**In Progress**

**Seewald, N.J.**, Smith, S.N., Lee, A.J., Klasnja, P., Murphy, S.A. (Under review) “Practical Considerations for Data Collection and Management in Mobile Health Micro-randomized Trials.” *Statistics in Biosciences*.

**Seewald, N.J.**, Kidwell, K.M., Wu, T., Nahum-Shani, I., Almirall, D. (In progress) “Sample size considerations for comparing dynamic treatment regimens in a sequential multiple-assignment randomized trial with a continuous longitudinal outcome.” [arXiv:1810.13094](https://arxiv.org/abs/1810.13094) [stat.ME]

Smith, S.N., **Seewald, N.J.**, Lee, A.J.S., Hall, K., Necamp, T., Luers, B., Murphy, S.A., Klasnja, P. (In progress) “User Experience with HeartSteps, a Context-aware Application for Supporting Physical Activity.”

**Peer-Reviewed**

2018	<p>Klasnja, P., Smith, S., <b>Seewald, N. J.</b>, Lee, A., Hall, K., Luers, B., Heckler, E., Murphy, S. A. (2018), “Efficacy of contextually-tailored suggestions for physical activity: A micro-randomized trial of HeartSteps.” <i>Annals of Behavioral Medicine</i>, <a href="https://doi.org/10.1093/abm/kay067">https://doi.org/10.1093/abm/kay067</a>.</p>
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- Kidwell, K. M., **Seewald, N. J.**, Tran, Q., Kasari, K., Almirall, D. (2018), "Design and Analysis Considerations for Comparing Dynamic Treatment Regimens with Binary Outcomes from Sequential Multiple Assignment Randomized Trials" *Journal of Applied Statistics*, 45:9, 1628-1651 <http://dx.doi.org/10.1080/02664763.2017.1386773>
- 2017 Meurer, W. J., **Seewald, N. J.**, Kidwell, K. M. (2017), "Sequential Multiple Assignment Randomized Trials: An Opportunity for Improved Design of Stroke Reperfusion Trials." *Journal of Stroke and Cerebrovascular Diseases*, <http://dx.doi.org/10.1016/j.jstrokecerebrovasdis.2016.09.010>.
- Kadokia, K.C., Kidwell, K.M., **Seewald, N.J.**, Snyder, C.F., Storniolo, A.M., Otte, J.L., Flockhart, D.A., Hayes, D.F., Stearns, V., Henry, N.L. (2017), "Prospective assessment of patient-reported outcomes and estradiol and drug concentrations in patients experiencing toxicity from adjuvant aromatase inhibitors" *Breast Cancer Research and Treatment*
- 2016 Hertz, D. L., Kidwell, K. M., **Seewald, N. J.**, Gersch, C.L., Desta, Z., Flockhart, D.A., Storniolo, A.M., Stearns, V., Skaar, T.C., Hayes, D.F., Henry, N.L., and Rae, J. M. (2016), "Polymorphisms in Drug-Metabolizing Enzymes and Steady-State Exemestane Concentration in Postmenopausal Patients with Breast Cancer," *The Pharmacogenomics Journal*, <http://doi.org/10.1038/tpj.2016.60>
- Kadokia, K. C., Snyder, C. F., Kidwell, K. M., **Seewald, N. J.**, ..., Henry, N. L. (2016), "Patient-Reported Outcomes and Early Discontinuation in Aromatase Inhibitor-Treated Postmenopausal Women With Early Stage Breast Cancer" *The Oncologist*, 2, 539-546, <http://doi.org/10.1634/theoncologist.2015-0349>.
- Hertz, D. L., Caram, M. V., Kidwell, K. M., Thibert, J. N., Gersch, C., **Seewald, N. J.**, Smerage, J., Rubenfire, M., Henry, N.L., Cooney, K.A., Leja, M., Griggs, J.J., and Rae, J.M. (2016), "Evidence for association of SNPs in ABCB1 and CBR3, but not RAC2, NCF4, SLC28A3 or TOP2B, with chronic cardiotoxicity in a cohort of breast cancer patients treated with anthracyclines," *Pharmacogenomics*, 17 231-240, <http://doi.org/10.2217/pgs.15.162>.
- 2013 Randolph, A. H., **Seewald, N. J.**, Rickert, K. and Brown, S. N. (2013), "Tris (3, 5-di-tert-butylcatecholato) molybdenum (VI): Lewis Acidity and Nonclassical Oxygen Atom Transfer Reactions," *Inorganic Chemistry*, 52, 12587-12598, <http://doi.org/10.1021/ic401736f>
- 2012 Marshall-Roth, T., Liebscher, S. C., Rickert, K., **Seewald, N. J.**, Oliver, A. G. and Brown, S. N. (2012), "Nonclassical oxygen atom transfer reactions of oxomolybdenum(vi) bis(catecholate)," *Chemical Communications*, 48(63) 7826-7828. <http://doi.org/10.1039/c2cc33523a>

## Published Abstracts

- 2017 Klasnja, P., Smith, S.N., **Seewald, N.J.**, Lee, A.J., Hall, K., Murphy, S.A. (2017) "Effects of Contextually-Tailored Suggestions for Physical Activity: The HeartSteps Micro-Randomized Trial," *Annals of Behavioral Medicine*, 51, S902-S903.
- 2016 Hertz, D.L., Kidwell, K.M., **Seewald, N.J.**, Gersch, C.L., Desta, Z., Flockhart, D.A., Storniolo, A.M., Stearns, V., Skaar, T.C., Hayes, D. F., Henry, N.L., and Rae, J.M. (2016), "Abstract P5-12-05: CYP3A4\*22 polymorphism is associated with increased exemestane concentrations in postmenopausal breast cancer patients," *Cancer Research*, 76, 4 [supplement], P5-12-05, <http://dx.doi.org/10.1158/1538-7445.SABCS15-P5-12-05>.
- Kadokia, K.C., Kidwell, K.M., **Seewald, N.J.**, Snyder, C.F., Flockhart, D.A., Otte, J.L., Hayes, D.F., Storniolo, A.M., Stearns, V., and Henry, N.L. (2016), "Crossover from One Aromatase Inhibitor (AI) to Another in the Exemestane and Letrozole Pharmacogenetics (ELPh) Trial," *Journal of Clinical Oncology*, 34, 3 [supplement], 158.

- 2015 | Mammoser, A.G., Weathers, S.S., **Seewald, N.J.**, Taylor, J.M.G., and Junck, L. (2015), "Primary CNS Lymphoma; A Review of the University of Michigan Experience 2004-2013," *Journal of Clinical Oncology*, 33, 15 [supplement], e13012.
- Kadakia, K.C., Snyder, C.F., Kidwell, K.M., **Seewald, N.J.**, Storniolo, A.M., Flockhart, D.A., Carpenter, J.S., Hayes, D.F., Stearns, V., and Henry, N.L. (2015), "Associations between Treatment-Emergent Symptoms and Early Discontinuation of Aromatase Inhibitor (AI) Therapy," *Journal of Clinical Oncology*, 33, 15 [supplement], e20745.

## POSTERS AND PRESENTATIONS

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### Presentations

- 2018 | **Seewald, N.J.**, Kidwell, K.M., Nahum-Shani, I., McKay, J.R., Almirall, D. "Sample Size Considerations for Comparing Dynamic Treatment Regimens in a Sequential Multiple-Assignment Randomized Trial with a Continuous Longitudinal Outcome."  
 Joint Statistical Meetings. Vancouver, BC, Canada. July 30, 2018. *Topic Contributed*.  
 ENAR Spring Meeting. Atlanta, GA. March 27, 2018. *Contributed*.
- 2016 | **Seewald, N.J.** "GITting Started with Reproducibility: An Introduction to git and knitr." Biostatistics Student Association Computing Workshop, University of Michigan. January 29, 2016. *Invited*.
- 2015 | **Seewald, N.J.** "Getting Started with LaTeX." Biostatistics Brown Bag Seminar, Department of Biostatistics, University of Michigan. November 6, 2015. *Invited*.
- Seewald, N.J.**, Almirall, D., Kidwell, K.M. "Design, Analysis, and Sizing of Sequential Multiple Assignment Randomized Trials with Binary Outcomes." Graduate Student Statistical Topics Seminar Series, Department of Statistics, University of Michigan. September 24, 2015. *Invited*.
- Seewald, N.J.**, Almirall, D. "An Introduction to Adaptive Interventions and SMARTs." Guest Lecture, Advanced Seminar in Survey Methodology. Instructor William Yeaton, Ph.D. Institute for Social Research, University of Michigan. June 24-25, 2015.
- Nahum-Shani, I., **Seewald, N.J.** "Getting SMART: Experimental Design and Analysis Methods for Developing Adaptive Interventions." University of California San Francisco. May 19, 2015.

### Posters

- 2018 | **Seewald, N.J.**, Kidwell, K.M., Nahum-Shani, I., Wu, T., McKay, J.R., Almirall, D. "Sample Size Considerations for Comparing Dynamic Treatment Regimes in a Sequential Multiple-Assignment Randomized Trial with a Continuous Longitudinal Outcome." Seventh Annual Thomas R. Ten Have Symposium on Statistics in Mental Health. Chicago, IL.
- 2017 | **Seewald, N.J.**, Nahum-Shani, I., McKay, J.R., Almirall, D. "Sample Size Considerations for the Analysis of Continuous Repeated-Measures Outcomes in Sequential Multiple-Assignment Randomized Trials." Michigan Student Symposium for Interdisciplinary Statistical Sciences. Ann Arbor, MI.
- 2015 | **Seewald, N.J.**, Almirall, D., Kidwell, K.M. "A SMART Web-Based Sample Size Calculator." Michigan Student Symposium for Interdisciplinary Statistical Sciences. Ann Arbor, MI.
- 2014 | **Seewald, N.J.**, Almirall, D., Kidwell, K.M. "A SMART Web-Based Sample Size Calculator." IMPACT Symposium III: Advances in Clinical Trial Statistics: Multiplicity Adjustment and Sequential, Multiple Assignment, Randomized Trials. Cary, NC.

## AWARDS

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- 2017 | Winner, Best Departmental Poster - Statistics. Michigan Student Symposium for Interdisciplinary Statistical Sciences. March 24, 2017.
- 2015 | Winner, Best Departmental Poster - Biostatistics. Michigan Student Symposium for Interdisciplinary Statistical Sciences. March 20, 2015.

## PROFESSIONAL SOCIETY MEMBERSHIP

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American Statistical Association  
Society for Clinical Trials  
ENAR