

# CAITLIN WARD

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## EDUCATION

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<b>University of Iowa</b>	Iowa City, IA
Ph.D., Biostatistics	Expected May 2021
Dissertation Title: Advances in Spatio-Temporal Infectious Disease Modeling	
Advisors: Dr. Jacob Oleson and Dr. Grant Brown	
<b>University of Iowa</b>	Iowa City, IA
M.S., Biostatistics	2018
Preceptorship: Multiple Approaches to Showcasing Cancer Incidence in Iowa using Spatio-temporal Statistical Methods	
Advisor: Dr. Jacob Oleson	
<b>Iowa State University</b>	Ames, IA
B.S., Statistics, <i>Summa Cum Laude</i> , Minors in Mathematics and Russian Studies	2016

## RESEARCH INTERESTS

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- Infectious disease modeling
- Spatio-temporal modeling
- Network analysis
- Bayesian statistics
- Statistical Computing
- Latent growth modeling

## EMPLOYMENT

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<b>University of Iowa</b>	Iowa City, IA
<i>Graduate Research Assistant</i> , Biostatistics Consulting Center	August 2016 - May 2019 May 2020 - <i>present</i>
<ul style="list-style-type: none"><li>• Collaborate with and provide statistical analyses for University of Iowa faculty (25) and student (13) researchers across many disciplines</li><li>• Independently consulted on &gt;20 projects as a senior consultant</li></ul>	
<i>Graduate Research Assistant</i> , COVID-19 Modeling for Grinnell College	July 2020 - <i>present</i>
<ul style="list-style-type: none"><li>• Evaluated agent-based models to aid in decision-making</li></ul>	
<i>Graduate Research Assistant</i> , Public Policy Center	Summer 2019
<ul style="list-style-type: none"><li>• Analyzed network connections among Iowa's seven regional Accountable Communities of Health sites</li></ul>	
<i>Graduate Research Assistant</i> , Center for Public Health Statistics	August 2016 - May 2019
<ul style="list-style-type: none"><li>• Conducted data management for the Care For Yourself breast and cervical cancer screening program</li><li>• Created the <a href="#">Iowa Cancer Maps</a> for the Iowa Cancer Registry website</li><li>• Facilitated long-term project with the Harkin Institute and Iowa Department of Human Services investigating Child Care Assistance in Iowa</li></ul>	

University of Iowa  
Instructor

Iowa City, IA

Course Title	Semester/Year	Delivery Method	Class Size
BIOS:4120 Introduction to Biostatistics	Summer 2019	In-person	7
	Fall 2019	Online	27
	Spring 2020	Online	33
	Summer 2020	Online	65

#### Guest Lecturer

- EPID:5540 Public Health Surveillance. Use of Surveillance Data for COVID-19 Modeling. Fall 2020

#### PUBLICATIONS ([ORCID: 0000-0002-0806-0222](#))

##### Peer Reviewed Journal Publications

- **Ward, C.**, Oleson, J., Tomblin, B., Walker, E. (2020). Modeling Population and Subject-Specific Growth in a Latent Trait Measured by Multiple Instruments over Time using a Hierarchical Bayesian Framework. *Journal of Applied Statistics*. doi: 10.1080/02664763.2020.1817346.
- Kandemirli, S., Chopra, S., Priya, S., **Ward, C.**, Locke, T., Soni, N., Srivastava, S., Jones, K., Bathla, G. (2020) Presurgical detection of brain invasion status in meningiomas based on first-order histogram based texture analysis of contrast enhanced imaging. *Clinical Neurology and Neurosurgery*. doi: 10.1016/j.clineuro.2020.106205.
- Bathla, G., Priya, S., Samaniego, E., Deo, S. K., Fain, N. H., Soni, N., **Ward, C.**, Derdeyn, C. P. (2020). Cerebral computed tomographic angiography using third-generation reconstruction algorithm provides improved image quality with lower contrast and radiation dose. *Neuroradiology* <https://doi.org/10.1007/s00234-020-02406-y>
- Hartley, C. C., Renner, L. M., & **Ward, C.** (2019). A New Factor Solution for the Domestic Violence-Related Financial Issues Scale (DV-FI). *Journal of Interpersonal Violence*. <https://doi.org/10.1177/0886260519860888>
- **Ward, C.**, Oleson, J., Jones, K., Charlton, M. (2018). Showcasing Cancer Incidence and Mortality in Rural ZCTAs Using Risk Probabilities via Spatio-temporal Bayesian Disease Mapping. *Applied Spatial Analysis and Policy*. doi: 10.1007/s12061-018-9276-4.
- Saletta, M., Goffman, L., **Ward, C.**, & Oleson, J. (2018). Influence of Language Load on Speech Motor Skill in Children With Specific Language Impairment. *J Speech Lang Hear Res*, 61(3), 675-689. doi: 10.1044/2017-JSLHR-L-17-0066.

##### Journal Papers in Submission

- **Ward, C.**, Brown, G., Oleson, J. (Revisions Requested). An Individual Level Infectious Disease Model in the Presence of Uncertainty from Multiple, Imperfect Diagnostic Tests. *Biometrics*.
- Priya, S., Lui, Y., **Ward, C.**, Le, N., Neetu, S., Maheshwarappa, R., Monga, V., Zhang, H., Sonka, M., Bathla G. (Revisions Requested). Radiomics Based Differentiation Between Glioblastoma and Primary Central Nervous System Lymphoma: A Comparison of Diagnostic Performance Across Different Sequences and Machine Learning Techniques. *European Radiology*.
- Heeren, T., **Ward, C.**, Ashida, S., Sewell, D. (Submitted). Applying Network Analysis to Assess the Development and Sustainability of Multi-Sector Coalitions.

- Priya, S., Agarwal, A., **Ward, C.**, Locke, T., Monga, V., Bathla G. (Submitted) Survival prediction in glioblastoma on post-contrast imaging using filtration based first-order texture analysis.
- Priya, S., Lui, Y., **Ward, C.**, Le, N., Neetu, S., Maheshwarappa, R., Monga, V., Zhang, H., Sonka, M., Bathla G. (Submitted). Radiomics Based Differentiation Between Glioblastoma and Primary Central Nervous System Lymphoma: A Comparison of Diagnostic Performance Across Different Sequences and Machine Learning Techniques.
- Priya, S., Lui, Y., **Ward, C.**, Le, N., Neetu, S., Maheshwarappa, R., Monga, V., Zhang, H., Sonka, M., Bathla G. (Submitted). Radiomics Based Differentiation Between Glioblastoma, CNS Lymphoma and Brain Metastases: Comparing Diagnostic Performance Across MRI Sequences and Machine Learning Models.
- Priya, S., **Ward, C.**, Locke, T., Neetu, S., Maheshwarappa, R., Monga, V., Bathla G. (Submitted). Differentiation of glioblastoma from primary central nervous system lymphoma on post-contrast imaging using filtration based first-order texture analysis- Comparison of multiple machine learning models.
- Priya, S., Lui, Y., **Ward, C.**, Le, N., Neetu, S., Maheshwarappa, R., Monga, V., Zhang, H., Sonka, M., Bathla G. (Submitted). Machine Learning based Differentiation of Glioblastoma from Brain Metastasis using MRI derived Radiomics.

## HONORS AND AWARDS

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|---|-------------|
| • Ada Louise Ballard and Seashore Dissertation Fellowship, University of Iowa       | Spring 2021 |
| • University of Iowa Dare to Discover Banner Campaign, Featured Researcher          | 2021        |
| • William R. Clarke Graduate Teaching Assistant Award, University of Iowa           | 2020        |
| • University of Iowa Council on Teaching Outstanding Teaching Assistant Award       | 2020        |
| • Recipient of Thank a Teacher note of appreciation through the Center for Teaching | 2020        |
| • Leon F. Burmeister Memorial Scholarship Award, University of Iowa                 | 2018        |
| • William R. Clarke Graduate Research Assistant Award, University of Iowa           | 2018        |
| • George W. Snedecor Undergraduate Award, Iowa State University                     | 2015        |

## PRESENTATIONS

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### *Invited Talks*

- Introduction and Demonstration of an Interactive COVID-19 Forecasting Tool. University of Iowa College of Public Health Spotlight Series on COVID-19. Virtual presentation. July 2020
- Accountable Communities of Health: Measuring Connectivity and Sustainability using Network Analysis. University of Iowa Public Policy Center. Iowa City, IA. October 2019

### *Conference Presentations*

- An Individual Level Infectious Disease Model in the Presence of Uncertainty from Multiple, Imperfect Diagnostic Tests. Virtual presentation. *Joint Statistical Meetings.* August 2020
- A Spatio-Temporal Infectious Disease Model in the Presence of Uncertainty from Multiple, Imperfect Diagnostic Tests. Speed poster presentation. *Women in Statistics and Data Science Conference. Seattle, WA.* October 2019
- Modeling Population and Subject-Specific Growth in a Latent Trait Measured by Multiple Instruments Over Time Using a Hierarchical Bayesian Framework. Poster presentation. *Joint Statistical Meetings. Denver, CO.* August 2019

## FUNDING

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*University of Iowa Libraries Open Educational Resources (OER) Grant*

2020

- “Simulation Based Inference in Introductory Statistics.” Co-Principal Investigator. Total award amount: \$6,000
  - Creation of an interactive OER with embedded Shiny applications using simulation-based approaches to illustrate statistical concepts

## SERVICE

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*Department of Biostatistics, University of Iowa*

- Biostatistics Student Organization (BSO) Mentorship Chair, August 2020 - *present*
- Graduate Student Team Leader, COVID-19 Modeling Web Application, May 2020 - August 2020
- Biostatistics Student Organization (BSO) President, August 2019 - August 2020
- Administrative Committee, August 2019 - August 2020
- Web-Based Instruction Resource Committee, August 2019 - August 2020
- Biostatistics Student Organization (BSO) Treasurer, August 2018 - August 2019

*University of Iowa*

- Graduate & Professional Student Government (GPSG) Grant Reviewer, August 2019 - August 2020

*Professional*

- Refereed articles for the following journals
  - PLOS ONE
  - JAMA Network Open
  - Statistics in Medicine

## PROFESSIONAL ACTIVITY

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- Member, American Statistical Association (ASA)
- Center for the Integration of Research, Teaching and Learning (CIRTL) Practitioner Level
  - Teaching as Research (TAR) project: Evaluating Student Attitudes and Engagement in a Project-Enhanced Online Introduction to Biostatistics Course
- Member, Phi Beta Kappa