

Deena R. Schmidt

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EDUCATION

- Aug 2007 **Ph.D. Applied Mathematics, Cornell University**
Dissertation: *A mathematical look at DNA regulatory sequence evolution*
Committee: Richard Durrett (Advisor), Laurent Saloff-Coste, Charles Aquadro
- Jan 2005 **M.S. Applied Mathematics, Cornell University**
- May 2001 **B.S. Mathematics, Biology and Dance Minors, University of Akron**
In Honors and Summa Cum Laude

EXPERIENCE

- Jul 2022 **Associate Professor**
-Present Department of Mathematics and Statistics, University of Nevada, Reno
- Jan 2015 **Assistant Professor**
-Jun 2022 Department of Mathematics and Statistics, University of Nevada, Reno
- Feb 2015 **Affiliated Faculty Member**
-Present Integrative Neuroscience Graduate Program, University of Nevada, Reno
- Sept 2011 **Postdoctoral Scholar in Mathematical Biology**
-Dec 2014 Department of Mathematics, Applied Mathematics, and Statistics; Department of Biology,
Case Western Reserve University. Mentors: Peter Thomas and Robin Snyder
- Sept 2008 **Postdoctoral Fellow - Mathematical Biosciences Institute (MBI)**
-Aug 2011 Ohio State University. Mentors: Janet Best (OSU) and Mark Blumberg (Univ of Iowa)
- Sept 2007 **Postdoctoral Fellow - Institute for Mathematics and Its Applications (IMA)**
-Aug 2008 University of Minnesota
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RESEARCH INTERESTS

Mathematical biology; Applied probability and stochastic processes; Dynamical systems; Biological networks.
Focus: Development and analysis of mathematical models to understand the roles of stochasticity, structure, and evolution in shaping the dynamics of biological systems.

PEER-REVIEWED PUBLICATIONS

‡*Graduate student*, †*Undergraduate student*, **Equal authorship*

1. Samberg, A.J[†] and Schmidt, D.R. 2024+. An integrate-and-fire mathematical model of sleep-wake neuronal networks in the developing mammal. (In Revision for *PLOS ONE*; Submitted 9/23)

2. Freed, J.[†] and **Schmidt, D.R.** 2023. Using Markov chains to outline probability of alcohol dependence in alcoholics. *Nevada State Undergraduate Research Journal* 8(1): 85-105. (Accepted 12/22)
3. Dobreva, A., Camacho, E.T., Larripa, K.*, Radulescu, A.*, **Schmidt, D.R.***, and Trejo, I.* 2022. Insights into pathological mechanisms and interventions revealed by analyzing a mathematical model for cone metabolism. *Bioscience Reports* 42 (3): BSR20212457, 26 pages (Accepted 2/22)
4. Sheets, C.[‡], **Schmidt, D.R.**, Hurtado, P.J., Byrne, A.Q., Rosenblum, E.B., Richards-Zawacki, C., Voyles, J. 2021. Thermal Performance Curves of Multiple Isolates of *Batrachochytrium dendrobatidis*, a Lethal Pathogen of Amphibians. *Frontiers in Veterinary Science* 8: 648, 11 pages. (Accepted 5/21) - Supplementary Material written by Schmidt and Hurtado (30 pages)
5. Olmez, F., Kramer, P.R., Fricks, J., **Schmidt, D.R.**, and Best, J. 2021. Penalized KS method to fit data sets with power law distribution over a bounded subinterval. *Journal of Statistical Computation and Simulation* 91: 8, 1524-1563. (Accepted 12/20)
6. Camacho, E.*, Dobreva, A.*, Larripa, K.*, Radulescu, A.*, **Schmidt, D.***, and Trejo, I.* (*Alphabetical authorship*) 2021. Mathematical modeling of retinal degeneration: Aerobic glycolysis in a single cone. In *Association for Women in Mathematics Series: Using Mathematics to Understand Biological Complexity - From Cells to Populations*. Ed, R. Segal, B. Shtylla, and S. Sindi. Springer, 22: 135-178. (Accepted 7/20)
7. Clark, D.A.[‡], Odell, S.R.[‡], Armstrong, J.M.[‡], Turcotte, M.[†], Kohler, D.[†], Mathis, A.[†], **Schmidt, D.R.**, and Mathew, D. 2018. Behavior responses to chemical and optogenetic stimuli in *Drosophila* larvae. *Frontiers in Behavioral Neuroscience* 12: 324, 14 pages (Accepted 12/18)
8. **Schmidt, D.R.**, Galán, R.F. and Thomas, P.J. 2018. Stochastic shielding and edge importance for Markov chains with timescale separation. *PLoS Computational Biology* 14(6): e1006206, 44 pages (Accepted 5/18)
9. **Schmidt, D.R.** 2018. Balancing an academic career in mathematics with motherhood and life's other passions. *Journal of Humanistic Mathematics* 8(2): 281-291. (Accepted 3/18, Non-research publication)
10. Arnold, R.A.[†] and **Schmidt, D.R.** 2017. Changes in the coefficients of Zipf's law for English corpora of different contexts. *Nevada State Undergraduate Research Journal* 3(1): 14-25. (Accepted 4/17)
11. **Schmidt, D.R.** and Thomas, P.J. 2014. Measuring edge importance: a quantitative analysis of the stochastic shielding approximation for random processes on graphs. *Journal of Mathematical Neuroscience* 4: 1-52.
12. Grima, R., **Schmidt, D.R.** and Newman, T.J. 2012. Steady-state fluctuations of a genetic feedback loop: an exact solution. *Journal of Chemical Physics* 137: 035104.
13. Gay, V.L.*, Hemond, P.J.*, **Schmidt, D.***, Hemond, Z., O'Boyle, M.P., Best, J., O'Farrell, L. and Suter, K.J.* 2012. Hormone secretion in transgenic rats and electrophysiological activity in their gonadotropin releasing-hormone (GnRH) neurons. *American Journal of Physiology - Endocrinology and Metabolism* 303: E243-E252.
14. **Schmidt, D.**, Best, J. and Blumberg, M.S. 2011. Random graph and stochastic process contributions to network dynamics. *Discrete and Continuous Dynamical Systems, Suppl 2011* 2: 1279-1288.
15. Durrett, R., **Schmidt, D.** and Schweinsberg, J. 2009. A waiting time problem arising from the study of multi-stage carcinogenesis. *Annals of Applied Probability* 19: 676-718. (*Alphabetical authorship*)
16. Durrett, R. and **Schmidt, D.** 2009. Reply to Michael Behe. *Genetics* 181: 821-822.
17. Durrett, R. and **Schmidt, D.** 2008. Waiting for two mutations: with applications to regulatory sequence evolution and the limits of Darwinian evolution. *Genetics* 180: 1501-1509.
18. Durrett, R. and **Schmidt, D.** 2007. Waiting for regulatory sequences to appear. *Annals of Applied Probability* 17: 1-32. (*Alphabetical authorship*)
19. **Schmidt, D.** and Durrett, R. 2004. Adaptive evolution drives the diversification of zinc-finger binding domains. *Molecular Biology and Evolution* 21: 2326-2339.

Invited Book Chapters

1. **Schmidt, D.R.** 2024. Stochastic models in biology. In *Association for Women in Mathematics Book Series: Research Connections - Career and Research Journeys from the SMP Community*. Ed. A. Brisbin, K. Lange, E. McNicholas, and E. Purvine. Springer, p.167-195. (Accepted 9/23, In Press)
2. **Schmidt, D.R.** 2020. Network structure and dynamics of biological systems. In *Foundations for Undergraduate Research in Mathematics: An Introduction to Undergraduate Research in Computational and Mathematical Biology*. Ed, H. Callender Highlander, A. Capaldi, C. Diaz Eaton. Springer, p.299-351. (Accepted 7/19)

In Preparation

1. **Schmidt, D.R.**, Lemmon, B.[†], and Hurtado, P.J. 2024+. Contagion dynamics on adaptive networks: Norovirus as a case study. (In Prep - to be submitted to *Mathematical Biosciences* in Summer 2024)
2. **Schmidt, D.R.**, Armstrong, J.M.[‡], Hurtado, P.J., and Splaingard, M.L. 2024+. A general method for analyzing psychomotor vigilance task (PVT) data: Modeling sleep inertia in children. (In Prep)
3. **Schmidt, D.R.**, Splaingard, M.L., Smith, G.A. and Best, J. 2024+. Statistical analysis of normative data for psychomotor vigilance testing (PVT) in children. (In Prep)

Other Publications / Preprints

1. **Schmidt, D.** 2007. A mathematical look at DNA regulatory sequence evolution. Ph.D. Dissertation, Center for Applied Mathematics, Cornell University.
2. Cutting, C., Morales, C., Sánchez, F., **Schmidt, D.** and Hernández, C. 2001. Do we really have to take all our medicine? Predicting the consequences of large-scale antibiotic misuse. Cornell University BSCB Dept. Technical Report BU-1527-M.
3. **Schmidt, D.** and Pool, J. 2002. The effect of population history on the distribution of the Tajima's D statistic. (Preprint; 45 citations listed on Google Scholar)

INVITED RESEARCH PRESENTATIONS

Invited research talks at conferences/institutions unless otherwise specified

Society for Mathematical Biology Annual Meeting, Minisymposium "Cellular differentiation and phenotypic plasticity: methodological advances and biological insights", Seoul, South Korea (Invited for Jul 2024)

SIAM Life Sciences Conference, Minisymposium "Insights from Stochasticity in Intracellular Processes," Portland, OR (Invited for Jun 2024)

AMS Spring Southeastern Sectional Meeting, Special Session "Diversity in Mathematical Biology," Florida State University (Mar 2024)

Joint Mathematical Meetings, AMS Special Session "Undergraduate Research Activities in Mathematical and Computational Biology," San Francisco, CA (Jan 2024)

Mathematical Biology REU Virtual Seminar Series, Seminar Talk, SUNY New Paltz (Jun 2023)

SIAM Conference on Applications of Dynamical Systems, Minisymposium "Topics in Mathematical Biology," Portland, OR (May 2023)

Joint Mathematical Meetings, AMS Special Session "Mathematical Models of Diseases: Analysis and Computation," Virtual (Apr 2022)

Joint Mathematical Meetings, AMS Special Session "Undergraduate Research Activities in Mathematical and Computational Biology," Virtual (Apr 2022)

Mathematical Biology Virtual Seminar, Department of Mathematics, Ohio State University (Feb 2022)

Mathematical Biology Virtual Seminar, Department of Mathematics, University of Iowa (Mar 2021)

Mathematical Biosciences Institute (MBI) Virtual Workshop on Mathematical and Computational Methods in Biology (May 2020)

Joint Mathematics Meetings, AMS/MAA Special Session “Getting Started in Undergraduate Research: Topics, Tools and Open Problems,” Denver, CO (Jan 2020)

SACNAS National Diversity in STEM Conference, Special Session “Research and Successful Collaborations of Mothers in Mathematical Biology,” Honolulu, HI (Nov 2019)

Seventh International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems (ICMA), Arizona State University (Oct 2019)

International Symposium on Biomathematics and Ecology Education and Research (B.E.E.R.), Invited Session “Open and Accessible Problems for Undergraduates in Mathematical and Computational Biology,” University of Wisconsin, La Crosse (Oct 2019)

Osher Lifelong Learning Institute (OLLI) Seminar Series, UNR, general audience research talk (Sept 2019)

SIAM Conference on Applications of Dynamical Systems, Minisymposium “Stochastic Models in Biology,” Snowbird, UT (May 2019)

Biostatistics Workshop Seminar, Department of Biomedical Data Science, Stanford University (Oct 2018)

AIMS Conference on Dynamical Systems and Differential Equations, Special Session “Randomness meets Life,” Taipei, Taiwan (July 2018)

Random Trees: Structure, Self-similarity, and Dynamics, CIMAT, Guanajuato, Mexico (April 2018)

Integrative Neuroscience Symposium (Conference), University of Nevada, Reno (Sept 2017)

Society for Mathematical Biology Annual Conference, Minisymposium “Confronting Biological Models with Data: Dealing with Complexity and Sparsity,” Salt Lake City, UT (July 2017)

Tenth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Session “Nonlinear Dynamics in Mathematical Biology and Neuroscience,” University of Georgia (Apr 2017)

Neuroscience Graduate Seminar, University of Nevada, Reno (Nov 2016)

AIMS Conference on Dynamical Systems and Differential Equations, Special Session “Randomness meets Life,” Orlando, FL (July 2016)

Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology (June 2016)

Neuroscience Graduate Seminar, University of Nevada, Reno (Oct 2015)

Ninth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Session “Evolution Equations in Mathematical Biology,” University of Georgia (Apr 2015)

Mathematics of Life Sciences Seminar, Case Western Reserve University (Oct 2014)

SACNAS National Conference, Special Session “Applications of Mathematics in Biology,” Los Angeles, CA (Oct 2014)

SIAM Conference on the Life Sciences, Special Session “Mathematical Questions in Neuronal and Neural Network Dynamics,” Charlotte, SC (Aug 2014)

Department of Mathematics and Statistics Seminar, University of Nevada, Reno (May 2014)

Biophysics Seminar, Ohio State University (Feb 2014)

Department of Mathematics/CS “Pizza Talk” and Seminar, Ohio Wesleyan University (Feb 2014)

Department of Mathematics Colloquium, Kansas State University (Feb 2014)

Engineering Sciences and Applied Mathematics Seminar, Northwestern University (Jan 2014)

Department of Mathematics Colloquium, California State University, Fresno (Sept 2013)

SIAM Conference on Applications of Dynamical Systems, Minisymposium “Stochastic Dynamics on Neuronal Networks,” Snowbird, UT (May 2013)

Science Lecture Series, Ohio Wesleyan University (Apr 2013)

Eighth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Session “Dynamics of Neuronal Networks,” University of Georgia (Mar 2013)

Mathematics of Life Sciences Seminar, Case Western Reserve University (Jan 2012)

Mathematical Field of Dreams Workshop - Invited speaker & MBI representative, Arizona State University (Oct 2011)

European Conference on Mathematical and Theoretical Biology and Society for Mathematical Biology Annual Meeting, Special Session “Modeling Dynamics of Complex Biological Systems,” Krakow, Poland (June 2011)

Probability and Discrete Math in Mathematical Biology Workshop, National University of Singapore (May 2011)

SIAM Conference on Applications of Dynamical Systems, Minisymposium “Combinatorial Neurodynamics,” Snowbird, UT (May 2011)

Department of Mathematics Seminar, Iowa State University (Mar 2011)

SAMSI Dynamics ON Networks Workshop, Raleigh, NC (Mar 2011)

Computational Studies Lecture Series, Capitol University (Mar 2011)

Department of Mathematics Colloquium Series, University of Colorado, Colorado Springs (Feb 2011)

Science Lecture Series, Ohio Wesleyan University (Sept 2009)

SIAM Conference on the Life Sciences: Workshop Celebrating Diversity, Denver, CO (July 2009)

Mathematical Biology Workshop, University of Utah, Poster (May 2009)

Research for Undergraduates Adventures in Mathematical Biology and its Applications (RUMBA) Seminar, Ohio State University (Feb 2009)

Applied Math/Physics Seminar, University of California at Merced (Dec 2008)

Workshop for Women in Probability (Conference), Cornell University (Oct 2008)

Seventh World Congress in Probability and Statistics, Invited Session, Singapore (July 2008)

Mathematics Colloquium, Carleton College (May 2008)

Probability Seminar, Department of Mathematics, University of Minnesota (Nov 2007)

Women in Mathematics Program - Invited speaker, University of Akron (Apr 2005)

INVITED TEACHING/ADVISING PRESENTATIONS

McNair Scholars Program - Panelist on Faculty Life and Careers with a Ph.D., UNR (Jul 2023)

STEM Sisters: Training program for high school/undergraduate women interested in science, Invited Talk “Statistical Analysis of Biological Data”, Voyles Lab, UNR (Mar 2023, July 2021)

Statistics Graduate Seminar “NSF Graduate Research Fellowship,” UNR (Nov 2023, Apr 2021)

Association for Women in Mathematics - Work/Life Balance Panelist, UNR (Apr 2021)

Statistics Graduate Seminar “Overview of My Research within Mathematical Biology, Applied Probability, and Network Modeling,” UNR (Mar 2021)

Dept of Mathematics and Statistics Graduate Seminar “My Experience Teaching Precalculus,” UNR (Sept 2020)

Association for Women in Mathematics - Career/Life Balance Seminar Talk, Denison University (Sept 2012)

Summer Math Program for Women - Graduate School Panelist, Carleton College (June 2001)

OTHER PRESENTATIONS

Contributed conference talks, posters, local research talks

WolfPack Discoveries Research Symposium, UNR, Poster presented by undergrad Lalise Gizaw (Dec 2023)

WolfPack Discoveries Research Symposium, UNR, Poster presented by undergrad Adrian Samberg (Apr 2022)

Undergraduate Research Symposium, UNR, Virtual, Talk given by undergrad Dana Winterringer (May 2021)

SACNAS National Diversity in STEM Conference, Virtual, Poster presented by undergrad Dana Winterringer (Oct 2020)

Society for Mathematical Biology Annual Meeting, Virtual, Poster (Aug 2020) - *SMB Poster Award*

Society for Mathematical Biology Annual Meeting, Montreal, Canada, Contributed talk (July 2019)

SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, Poster presented by undergrad Brittany Lemmon (May 2019) - *SIAM Red Sock Outstanding Poster Award*

Undergraduate Research Symposium, UNR, Posters presented by undergrads Brittany Lemmon and Catalina Medina (May 2019)

Guest Lecture on Stochastic Modeling (Research talk for STAT 4/622: Stochastic Processes), UNR (Nov 2018)

Research & Innovation Grantee Showcase, UNR, Poster (Apr 2018)

International Conference on Mathematical Neuroscience, Boulder, CO, Contributed talk (June 2017)

Undergraduate Research Symposium, UNR, Poster presented by undergrad Kevin Bumgartner (Apr 2017)

Guest Lecture on Network Dynamics (Research talk for MATH 721: Nonlinear Dynamics and Chaos), UNR (Nov 2016)

Guest Lecture on Network Dynamics (Research talk for EECB 751: Ecological Networks), UNR (Oct 2015)

Advances in Discrete Networks Workshop, University of Pittsburgh, Poster (Dec 2014) - *Poster Award*

Nonlinear Dynamics and Stochastic Methods: from Neuroscience to Other Biological Applications, University of Pittsburgh, Poster (Mar 2014)

MBI Workshop: Cellular and Subcellular Mechanisms, Ohio State University, Talk and Poster (Apr 2013)

MBI 10th Anniversary Meeting - Math Biology: Looking at the Future, Ohio State University, Poster (Sept 2012)

Institute Partners Meeting, Mathematical Biosciences Institute, Ohio State University, Poster (Feb 2011)

MBI Postdoc Seminar, Ohio State University (Dec 2010)

Blackwell-Tapia Conference, Mathematical Biosciences Institute, Ohio State University, Poster (Nov 2010)

MBI Postdoc Seminar, Ohio State University (June 2010)

MBI Speaking Workshop, Ohio State University, Organizer and Speaker (Feb 2010)

Institute Partners Meeting, Mathematical Biosciences Institute, Ohio State University, Poster (Oct 2009)

MBI Postdoc Seminar, Ohio State University (Feb 2009)

Institute Partners Meeting, Mathematical Biosciences Institute, Ohio State University, Poster (Oct 2008)

National AMS/MAA Joint Meetings, San Diego, CA, Talk by my REU students (Jan 2008)

IMA Postdoc Seminar, University of Minnesota (Nov 2007)

IMA Postdoc Show and Tell, Short talk, University of Minnesota (Sept 2007)

MathFest, San Jose, CA, Talk by my REU student Sara Jensen (Aug 2007) - *Outstanding presentation award*

Conference Jacques-Monod: Evolutionary Genomics, CNRS in Roscoff, France, Contributed talk (May 2007)

Mathematical Sciences Colloquium, Cornell University (Apr 2007)

MBI Workshop for Young Researchers in Mathematical Biology, Ohio State University, Poster (Mar 2007)

Cornell University Summer School in Probability: Probability problems that arise from genetics, Talk (June 2006)

Society for Molecular Biology and Evolution (SMBE) Genomes, Evolution, and Bioinformatics Conference, Arizona State University, Contributed talk (May 2006)

Mathematical Sciences Graduate Student Seminar, Cornell University (Nov 2004)

SMBE Genomes and Evolution Conference, Penn State University, Poster (June 2004)

Eastern Great Lakes Molecular Evolution Meeting, Cornell University, Poster (Apr 2004)

IMA Presentation of summer graduate program research, University of Minnesota (Aug 2004)

National MAA/AMS Joint Meetings, New Orleans, Poster (Jan 2001) - *Outstanding undergraduate poster award*

University of Akron Undergraduate Research Poster Session (Apr 2001)

MTBI Presentation of summer undergraduate research, Cornell University (Aug 2000)

HONORS AND AWARDS

Advising Award:

2019 Distinguished Faculty Award, UNR Honors Program

Teaching / Advising Award Nominations:

2024 Semi-Finalist for LeMay Award for Excellence in Teaching, UNR College of Science

2023-24 Nomination for F. Donald Tibbitts Distinguished Teacher Award, UNR (selected by College of Science)

2022-23 Finalist for F. Donald Tibbitts Distinguished Teacher Award, UNR

2021-22 Finalist for F. Donald Tibbitts Distinguished Teacher Award, UNR

2023, 2022 Nomination for Paul and Judy Bible University Teaching Excellence Award, UNR (by UNR students)

2021 Nomination for LeMay Award for Excellence in Teaching, UNR College of Science

2020 Nomination for UNR / Regents' Undergraduate Advising Award (selected by College of Science)

2005, 2006 Nomination for Department of Mathematics Teaching Award, Cornell University

Research Awards:

Society for Mathematical Biology Outstanding Poster Award (\$250), SMB Virtual Meeting (Aug 2020)

SIAM Red Sock Outstanding Poster Award (to undergrad mentee B. Lemmon \$100), SIAM Dynamical Systems, Snowbird, UT (May 2019)

Outstanding Poster Award (\$100), Advances in Discrete Networks Workshop, Univ. of Pittsburgh (Dec 2014)

Grants Awarded:

Simon Laufer Mathematical Sciences Institute (SLMath; Formerly MSRI) Summer Research in Mathematics (SRiM), 2024. Funding for travel and 2 weeks in residence for my group of 3 women, UC Berkeley.

- PI A. Radulescu, **Co-PI D. Schmidt**, and Co-PI K. Larripa: \$15,000 (Awarded Dec 2023)

NSF Understanding the Rules of Life: Emerging Networks: *Quantifying the phytochemical landscape through Indigenous Knowledge, interaction diversity, genomics, and network dynamics.*

- PI L. Robinson (Biology), **Co-PI D. Schmidt**, Co-PI L. Dyer (Biology), Co-PI C. Jeffrey (Chemistry): \$2,999,552 (Awarded Nov 2021; Funded 1/2022-12/2026)

Mathematical Sciences Research Institute (MSRI) Summer Research for Women in Mathematics, 2020. Funding for travel and 2 weeks in residence for my group of 6 women (deferred to Fall 2021 due to COVID-19; Virtual).

- **PI D. Schmidt** (with 5 Co-PIs and 1 supporting faculty): \$16,275

NIH/NIGMS Center for Biomedical Research Excellence (COBRE). *Center for Integrative Neuroscience*. Project Led by D. Mathew: *Functional Diversity of ORNs*. P20 GM103650.

- PI M. Webster (UNR Psychology), **Supporting/collaborator D. Schmidt** with Co-PI D. Mathew: \$450,000 (2017-2020)

New Scholarly Endeavor, Office of Research and Innovation, UNR. *Building an odor coding model that can reliably predict insect behavior*. \$2500 (2017)

- PI D. Mathew (UNR Biology): \$1500, **Co-PI D. Schmidt**: \$1000

Mentored Student Research Awards:

Nevada Undergraduate Research Award (NURA), UNR. *The effect of memorization versus understanding on student performance in undergraduate math courses*. \$4125 (Summer/Fall 2023)

- Undergraduate researcher: Lalise Gizaw \$3375, **Faculty mentor: D. Schmidt** \$750

Nevada Undergraduate Research Award (NURA), UNR. *A mathematical model of sleep-wake patterns in the developing rat.* \$2300 (Spring 2022)

- Undergraduate researcher: Adrian Samberg \$1800, **Faculty mentor: D. Schmidt** \$500

Nevada Undergraduate Research Award (NURA), UNR. *A mathematical model on the influence of diet on colorectal cancer: CIN pathway.* \$2300 (2020-21)

- Undergraduate researcher: Dana Winterringer \$1800, **Faculty mentor: D. Schmidt** \$500

NSF EPSCoR Undergraduate Research Opportunity Program (UROP), UNR. *A mathematical model on the influence of diet on colorectal cancer: MSI pathway.* \$4750 (2020-21)

- Undergraduate researcher: Dana Winterringer \$4000, **Faculty mentor: D. Schmidt** \$750

Honors Undergraduate Research Award (HURA), UNR. *Contagion dynamics on an adaptive network: Norovirus as a case study.* \$1900 (Spring 2019)

- Undergraduate researcher: Brittany Lemmon \$1400, **Faculty mentor: D. Schmidt** \$500

Nevada NASA Space Grant Consortium, Research in Science and Engineering Hands on Projects (RiSE and HoP). *Relaxing the constant population constraint in mutation models.* \$4000 (2016-17)

- Undergraduate researcher: Kevin Bumgartner, **Faculty mentor: D. Schmidt**

Submitted Travel Grant Proposal (Pending):

AWM Travel Grant. *Biological Network Dynamics.* Society for Mathematical Biology Annual Meeting, Konkuk University, Seoul, South Korea. June 30-July 5, 2024. (Submitted Feb 2024)

Submitted Grant Proposals (Not Awarded):

American Institute of Math Structured Quartet Research Ensemble (AIM SQuaRE): *Analyzing Network Transfer Entropy in Stochastic Cancer Dynamics.* PI L. Huynh (U. Utah), **Co-PI D. Schmidt**, Co-PI T. Chou (UCLA), Co-PI A. Strang (U. Chicago), Co-PI S. Pu (U. West Florida) \$ 15,000 (Nov 2022)

NSF Research Traineeship (NRT): *Future Data Science Fellowship Program.* PI E. Hand (CSE), Co-PI A. Panorska (Math/Stat), Co-PI D. Feil-Seifer (CSE), Co-PI A. Kirn (Engr Educ). **Senior Personnel D. Schmidt**, 5 other Senior Personnel. \$2,999,690 (Sept 2022)

NSF Research Traineeship (NRT) Pre-proposal: *A multidisciplinary approach to the photon/material/electron proxy at the nanoscale,* Track 1 Pre-Proposal. PI M.A. Alpuche (Chemistry), Co-PI C. Barile (Chemistry), Co-PI M. Tucker (Chemistry), Co-PI S. Odoh (Chemistry) **Co-PI D. Schmidt.** \$3,000,000 (Mar 2021)

Simons Foundation - Collaboration Grants for Mathematicians: *Stochastic dynamics on networks with applications in neuroscience.* **PI D. Schmidt.** \$42,000 (Jan 2021)

NIH: *Wastewater Surveillance Integrated with Human Testing to Develop Predictive COVID-19 Prevalence Model.* PI K. Pagilla (Civil/Env't Engineering), **Co-I D. Schmidt**, Co-I P. Hurtado (Math/Stat), Co-I H. Ebrahimian (Civil/Env't Eng), Co-I A. Talaei-Khoei (Information Systems), Co-I M. Pandori (Director, NV State Public Health Laboratory). \$2,954,655 (Sept 2020)

NSF DEB: *Quantifying the phytochemical landscape through interaction diversity, genomics, and network dynamics.* PI L. Robinson (Biology), **Co-PI D. Schmidt**, Co-PI L. Dyer (Biology), Co-PI T. Parchman (Biology), Co-PI C. Jeffrey (Chemistry). \$1,675,983 (Aug 2020)

NIH RO1: *Experience-Dependent Plasticity in Mouse Superior Colliculus and Ethological Visual Behavior.* PI J. Hoy (Biology) and **Supporting/consultant D. Schmidt.** \$1,869,085 (Feb 2020)

Simons Foundation - Collaboration Grants for Mathematicians: *Stochastic processes on networks with applications in biology.* **PI D. Schmidt.** \$42,000 (Jan 2020)

Institute of Museum and Library Services: *Hidden Natural History Data: Synthesizing Potential Insect-Plant Pollination Networks with Museum Collections of Lepidoptera.* PI L. Dyer (Biology), **Co-PI D. Schmidt**, Co-PI

M. Forister (Biology), Co-PI E. Leger (Biology), Co-PI J. Allen (Biology), and Supporting B. Balmaki (Biology). \$380,133 (Nov 2019)

NSF Collaborative Research: *The phytochemical landscape: Biodiversity through a spectroscopic lens*. PI Christopher Jeffrey (Chemistry), **Co-PI D. Schmidt**, and 7 other Co-PIs from UNR Biology, Chemistry, Biochemistry, and Math/Stats. \$1,000,000 (May 2018)

American Mathematical Society Centennial Fellowship: *Stochasticity and structure in biological systems*. **PI D. Schmidt**. \$102,300 (Dec 2017)

Women in STEM2D Scholars Program, Johnson & Johnson: *Mathematical modeling of sleep-wake regulatory networks*. **PI D. Schmidt**. \$150,000 (Oct 2017)

NIH R-15: *Towards building a reliable odor coding model: Accounting for functional diversity within a chemosensory system*. PI D. Mathew, **Supporting/collaborator D. Schmidt**. \$418,880 (June 2017)

NSF: *Incorporating neuronal diversity in odor coding models*. PI D. Mathew, **Co-PI D. Schmidt**. \$300,000 (Jan 2017)

Nevada NSF EPSCoR: *Towards 100% carbon energy independence in Nevada*. PI W. Bein (UNLV Comp Sci), **Supporting/collaborator D. Schmidt**, 14 others supporting and 3 Co-PIs from UNR, UNLV, and DRI. \$4,800,000 (Sept 2016)

Simons Foundation - Collaboration Grants for Mathematicians: *Stochasticity and structure in biological systems*. **PI D. Schmidt**. \$35,000 (Jan 2015)

NSF Collaborative Research in Computational Neuroscience: *Mathematical modeling of sleep-wake processes*. PI J. Best (OSU), **Co-PI D. Schmidt**, Co-PI M.S. Blumberg (U of Iowa). (Feb 2011)

Travel Grants:

- UNR Faculty Travel Grant: Society for Mathematical Biology Conference, Columbus, OH: \$1000 (July 2023)
- Association for Women in Mathematics (AWM) Travel Grant: SACNAS National Diversity in STEM Conference, Honolulu, HI: \$2041 (Oct 2019)
- NSF Travel Award: Seventh International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, Arizona State University: \$710 (Oct 2019)
- UNR Faculty Travel Award: SMB Conference, Montreal: \$750 (July 2019)
- NSF Travel Award: Advances in Discrete Networks Workshop, University of Pittsburgh: \$650 (Dec 2014)
- NSF Travel Award: Nonlinear Dynamics and Stochastic Methods: from Neuroscience to Other Biological Applications, University of Pittsburgh: \$450 (Mar 2014)
- European Conference on Mathematical and Theoretical Biology/SMB Meeting, Krakow (Jul 2011)
 - Landahl SMB Travel Award: \$500
 - NSF Travel Award: \$1000
- SIAM Life Sciences Meeting: Workshop Celebrating Diversity, Denver, CO (Jul 2009)
- Seventh World Congress in Probability and Statistics, Singapore (Jul 2008)
 - Institute of Mathematical Statistics Laha Travel Award: \$1000
 - NSF Travel Award: \$500
- SACNAS National Conference and "REUnion" Travel Award, Denver, CO (Oct 2005)

Fellowships:

Case Western Reserve University Postdoctoral Fellowship, Funded by NSF (2011-2015)

MBI Postdoctoral Fellowship, Ohio State University (2008-2011)

IMA Postdoctoral Fellowship, University of Minnesota (2007-2008)

National Science Foundation Graduate Research Fellowship, Cornell University (2003-2007)

NSF Training Grant Fellowship in Mathematical Biology, Cornell University (2001-2003)

Other:

Outstanding Senior Award, University of Akron (2001)
 University Honors Scholar, University of Akron (2001)
 Presidential Scholarship and 3 Math Department Scholarships, University of Akron (1997-2001)
 University and National Dean's List, University of Akron (1997-2001)

Undergraduate Honor Societies, University of Akron:

- Pi Mu Epsilon Mathematics Honorary (Secretary 1999-2000, Member 1999-2001)
- Mortar Board National Honor Society (VP 2000-01, Treasurer 1999-2000)
- Omnicron Delta Kappa Leadership Honor Society (Member 1999-2001)
- Golden Key International Honor Society (Director of Communication 1999-2001)

STUDENTS SUPERVISED (UNR)**Ph.D. Dissertation Advisor:**

- **Bishal Lamichhane**, Ph.D. student in Statistics and Data Science (Fall 2023 - present)
 - *Large language models in network science.*

M.S. Thesis Advisor:

- **Tyler Ewing**, M.S. student in Statistics and Data Science (Fall 2023 - present)
 - *Modeling gene regulation by MicroRNA in cancer.*
- **Andrew Chavez**, M.S. student in Statistics and Data Science (Fall 2023 - present)
 - *Modeling and analysis of interaction networks across phytochemical landscapes.*
- **Ibraheem Khan***, M.S. Statistics and Data Science (May 2023 - Aug 2023)
 - *The horizontal tunnelability graph is dual to level set trees.*
 - *I took over as advisor after I. Zaliapin passed away.
- **Samuel Sadovia**, M.S. student in Statistics and Data Science (Fall 2022 - present)
 - *Comparative investigation of fitting power law type distributions.*
- **Natasha Lang**, M.S. Statistics and Data Science (Spring 2021 - Spring 2022)
 - *An analysis of threshold models on networks: modeling social contagions and infectious diseases.*
- **Ben Claassen**, M.S. Mathematics: Statistics Option (Fall 2017 - Spring 2019)
 - *Classification and statistical analysis of employment growth in United States counties.*
- **Joanna Armstrong**, M.S. Mathematics: Statistics Option (Spring 2017 - Summer 2018)
 - *Developing a general method for analyzing psychomotor vigilance task data: modeling sleep inertia in children.*

Ph.D. Dissertation Committee Member:

- **Nasser Al Ali**, Ph.D. student in Statistics and Data Science (Mar 2024 - present)
 - *Zero-inflated mixture item response theory (mix-IRT) models. Advisors: Mihye Ahn and Yinghan Chen*
- **David Saah**, Ph.D. student in Statistics and Data Science (Apr 2023 - present)
 - *TBD. Advisor: TBD (formerly, Ilya Zaliapin)*
- **Chris Wingard**, Ph.D. student in Applied Mathematics (Apr 2023 - present)
 - *Using neural networks to predict the approximate inertial manifold for the Kuramoto-Sivashinsky equation. Advisor: Eric Olson*

- **Beau Smith**, Ph.D. student in Applied Mathematics (Dec 2022 - Spring 2023)
- *On the solvability of inverse problems arising from the two-layer Lorenz '96 system. Advisor: Eric Olson*
- **Jingxuan Yang**, Ph.D. student in Statistics and Data Science (Apr 2022 - Aug 2023)
- *Variable selection in linear mixed effects model with grouped variables. Advisors: Mihye Ahn and Yinghan Chen*
- **Jihyun Park**, Ph.D. student in Statistics and Data Science (Dec 2021 - present)
- *Applications of semi heavy-tailed distributions in financial models: A focus on US bonds market. Advisor: Andrey Sarantsev*
- **Seth Odell**, Ph.D. Integrative Neuroscience (Nov 2021 - May 2022)
- *Analysis of olfaction-driven locomotor behavior of *Drosophila melanogaster* larvae. Advisor: Dennis Mathew*
- **Jason Clapp**, Ph.D. student in Physics (Aug 2021 - present)
- *Topics in high energy density physics. Advisor: Roberto Mancini*
- **Julia Brockman**, Ph.D. student in Ecology, Evolution, and Conservation Biology (Summer 2021 - present)
- *Raven movement ecology and management. Advisor: Perry Williams*
- **Kara Emery**, Ph.D. Integrative Neuroscience (Fall 2020 - Spring 2021)
- *Coding strategies underlying visual processing. Advisor: Michael Webster*
- **Ellyn Huggins**, Ph.D. student in Geology (Fall 2018 - Fall 2023)
- *Applications and examination of techniques used to determine magma storage and ascent timescales. Advisor: Philipp Ruprecht*
- **Salvador Gutierrez-Portocarrero**, Ph.D. Chemistry (Spring 2017 - Spring 2021)
- *Advances in single entity electrochemistry for semiconducting nanocrystal studies. Advisor: Mario Alpuche*
- **Zoe Haskell**, Ph.D. Statistics and Data Science (Fall 2018 - Fall 2020)
- *Mapping between tree metric spaces and time series: New constructions with applications to limit theorems for branch counts in partial Galton-Watson trees and signal processing. Advisor: Ilya Zaliapin*
- **David Clark**, Ph.D. Integrative Neuroscience (Fall 2016 - Fall 2020)
- *A Functional Dissection of the Larval *Drosophila* Olfactory Neural Circuit. Advisor: Dennis Mathew*

M.S. Thesis Committee Member:

- **Shea Frankenberger**, M.S. student in Speech Pathology (Spring 2023 - present)
- *Tongue pressures in healthy adults aged sixty to seventy-nine. Advisor: Kristine Galek*
- **Ryan Gustafson**, M.S. Applied Mathematics (Spring 2023)
- *Modeling sodium channel functional variation in garter snakes with known tetrodotoxin-resistant mutations. Advisor: Paul Hurtado*
- **Natalie Bladis**, M.S. Statistics and Data Science (Fall 2022 - Spring 2023)
- *Localization of measures with application to statistical seismology. Advisor: Ilya Zaliapin*
- **Ibraheem Khan**, M.S. student in Statistics and Data Science (Fall 2022 - May 2023; I became his thesis advisor after I. Zaliapin passed away)
- *The horizontal tunnelability graph is dual to level set trees. Advisor: Ilya Zaliapin*
- **Robert Fisch**, M.S. student in Mathematics: Applied Math Option (Spring - Fall 2022)
- *Approximating SIR-type structured-population models using data-driven homogeneous-population analogs. Advisor: Paul Hurtado*
- **Jillian Kiefer**, M.S. Mathematics: Applied Math Option (Fall 2020 - Aug 2021)
- *Risk-based transmission dynamics and reproduction number calculations in SEIR-type models. Advisor: Paul Hurtado*

- **Russell Reinhart**, M.S. Computer Science and Engineering (Spring 2020)
- *Deep learning-based exploration path planning. Advisor: Kostas Alexis*
- **Jamie Poston**, M.S. Computer Science and Engineering (Spring 2020)
- *Predicting agent behavior by estimating motion planners. Advisor: Richard Kelley*
- **Karla Henriksen**, M.S. Statistics and Data Science (Spring - Fall 2019)
- *Hyperbolic property of earthquake networks. Advisor: Ilya Zaliapin*
- **Matt Moroz**, M.S. Neuroscience (Spring 2018)
- *Sensitivity to visual gain modulation in head-mounted displays depends on fixation. Advisor: Paul MacNeilage*
- **Kevin Jay**, M.S. Economics (Spring 2018)
- *Price gradient analysis of the Washoe county housing market with emphasis on the impact of recent employment gains in Sparks, NV industrial centers. Advisor: Shunfeng Song*
- **Nick Liccardo**, M.S. Civil and Environmental Engineering (Summer - Fall 2017)
- *Methodology for roughness-speed relationship with SHRP2 naturalistic driving study data. Advisor: Hao Xu*
- **Dillon Aberasturi**, M.S. Mathematics: Statistics option (Spring 2016 - Spring 2017)
- *Self-similarity of random aggregation trees in hyperbolic spaces. Advisor: Ilya Zaliapin*

M.S. Non-Thesis Committee Member:

- **Vanessa Vidas**, M.S. Statistics and Data Science (Spring 2024)
- **Connor Dayton**, M.S. Statistics and Data Science (Spring 2023)
- **Jaucelyn Canfield**, M.S. Statistics and Data Science (Fall 2022 - Spring 2023)
- **Jakob Lovato**, M.S. Statistics and Data Science (Summer 2022 - Spring 2023)
- **Will Bliss**, M.S. Statistics and Data Science (Fall 2021 - Fall 2022)
- **Blaize Abuntori**, M.S. Statistics and Data Science (Spring 2021)
- **Sunil George**, M.S. Mathematics: Statistics Option (Spring 2018)

Undergraduate Research Advisor at UNR:

- **Jacob Levin**, Undergraduate Research (Apr 2024 - present)
- *TBA*
- **Dillon Kiernan**, Undergraduate Research (Apr 2024 - present)
- *TBA*
- **Ramona Tobey**, Undergraduate Research (Oct 2023 - present)
- *Modeling Lahontan cutthroat trout population dynamics in Nevada.*
- **Grant Pellegrini**, Undergraduate Research (May 2023 - Sept 2023)
- *Statistics and data visualization of homelessness in Reno.*
- **Lalise Gizaw**, Undergraduate Research, McNair Scholars Program (Oct 2022 - present)
- *The effect of memorization versus understanding on student performance in undergraduate math courses*
- *NURA Recipient, 2023*
- **Hawkeye Plank**, Undergraduate Research (Oct 2022 - Dec 2022)
- *Mathematical model of key gene interactions involved in aging.*

- **Adrian Samberg**, Undergraduate Research (Aug 2021 - present)
 - *A mathematical model of sleep-wake patterns in the developing rat*
 - *NURA Recipient, 2022*
- **Jacob Freed**, Undergraduate Research (Summer 2021 - Summer 2023)
 - *Using Markov chains to outline probability of alcohol dependence in alcoholics*
 - *A stochastic model of seizure initiation*
- **Griffin Wagenknecht**, Undergraduate Research (Summer 2021 - Dec 2021)
 - *Statistical analysis of psychomotor vigilance task data*
- **Dana Winterringer**, Honors Thesis and Undergraduate Research (Fall 2018 - Spring 2021)
 - *Modeling the influence of diet on colorectal cancer in two different carcinogenesis pathways.*
 - *Gene regulatory networks: p53 tumor suppressor gene regulatory network.*
 - *NURA Recipient, 2020-21*
 - *UROP Recipient, 2020-21*
- **Brittany Lemmon**, Honors Thesis (Fall 2018 - Spring 2019)
 - *Contagion dynamics on adaptive networks: Norovirus as a case study.*
 - *HURA Recipient, 2019*
- **Catalina Medina**, Undergraduate Research, McNair Scholars Program (Spring 2018 - Spring 2019)
 - *Host-pathogen dynamics: Insights from analyzing data with nonlinear mixed effect dynamic models.*
 - *Primary mentor: Paul Hurtado.*
- **Narae Wadsworth**, Undergraduate Research (Fall 2017 - Summer 2018)
 - *Fitting continuous-time Markov chains to data using the generalized 'Linear Chain Trick'.*
 - *Primary mentor: Paul Hurtado.*
- **Kevin Bumgartner**, Undergraduate Research (Spring 2016 - Spring 2020, Summer 2021-Spring 2022)
 - *Relaxing the constant size constraint for Wright-Fisher populations.*
 - *NASA RiSE and HoP Scholarship Recipient, 2017*
- **Amanda Fredrickson**, Honors Thesis (Spring 2016 - Spring 2017)
 - *Analyzing and comparing choreographic structure in dance from Laban notated scores.*
 - *Secondary mentor: Paul Hurtado.*
- **Robert Arnold**, Honors Thesis (Spring - Fall 2015)
 - *Changes in the coefficients of Zipf's law for English corpora of different contexts.*

Co-Director of Mathematical Biology Research Group at UNR:

- *Bi-weekly or monthly meetings with current graduate and undergraduate students to discuss ongoing student research and professional development. Co-organized with Paul Hurtado. (Jan 2018 - present)*

GRADUATE STUDENT RECRUITMENT (UNR)

Ph.D. Students:

- **Parisa Nazemi**, Ph.D. student in Mathematics: Applied Mathematics Option (Accepted with TAsip for Fall 2020, declined due to COVID-19 and visa issues; international student from Iran.)
 - *Research Topic: Mathematical neuroscience.*

M.S. Students:

- **Dana Winterringer**, M.S. student in Statistics and Data Science (Admitted for Fall 2021, declined; accepted a job in industry)
 - Graduate Dean's Merit Scholarship (2021-22): \$10,000

TEACHING EXPERIENCE

University of Nevada, Reno:

- **Instructor - Pre-Calculus I: Math 126 (Spring 2024)**
- Lecture twice per week; 119 undergraduate students. Encourage in class participation, hold office hours twice per week, create quizzes/exams, proctor/grade exams, assign grades, and guide TA.
- **Instructor - Probability and Measure: Stat 705 (Fall 2023)**
- New preparation. Lecture twice per week; 6 PhD and MS students. Encourage in class discussion, hold office hours, create lecture notes from scratch, create exams and homework, proctor/grade exams, grade weekly HW, assign grades. No grader.
- **Instructor - Independent Study: LLMs in Network Science: Stat 793 (Fall 2023)**
- 3 credit IS for PhD student Bishal Lamichhane. LLM=large language models. Met weekly (60 minutes/week), discussion based format, final paper to be posted on arXiv.
- **Instructor - Independent Study: Covid Modeling: Math 499 (Fall 2023)**
- 3 credit IS for undergraduate math major Lauren Feldman. Met weekly (60-75 minutes/week), written weekly summaries of course material.
- **Instructor - Pre-Calculus I: Math 126 (Spring 2023)**
- Lecture twice per week; 147 undergraduate students. Encourage in class participation, hold office hours twice per week, create quizzes/exams, proctor/grade exams, assign grades, and guide TA.
- **Instructor - Independent Study: Internship: Math 490 (Spring 2023)**
- Internship course for 2 undergraduate math majors: Keith Wilcox interned at Kingsize Games and Marissa Richey interned at the Peppermill both in Reno. I met each student weekly (individually) to discuss their progress; final oral presentation.
- **Instructor - Introduction to Stochastic Processes: Stat 462/662 (Fall 2022)**
- Lecture twice per week in-person; 5 undergraduate students and 1 graduate student. This course includes some simulation exercises in R. Hold office hours twice per week, create and grade all exams, homework, and R exercises/projects. No grader.
- **Instructor - Independent Study: Topics in Applied Stochastic Processes: Stat 793 (Fall 2022)**
- Focus on hidden Markov models in various applications. Weekly discussion format for 3 stats graduate students. Collaboratively wrote a review paper and each student produced an independent project.
- **Instructor - Stochastic Models and Simulation: Stat 753 (Spring 2022)**
- Lecture twice per week; 15 MS/PhD students, hybrid instruction (2 students via Zoom). Developed/improved simulation component using R in class and in HW/exams. Hold office hours twice per week, create/grade HW and exams, assign grades. No grader.
- **Instructor - Pre-Calculus I: Math 126 (Spring 2022)**
- Lecture twice per week; 150 undergraduate students, in-person instruction, recorded lectures via Zoom for students out due to Covid. I encourage in class participation, hold office hours twice per week, create quizzes/exams, proctor/grade exams, assign grades, and guide TA.
- **Instructor - Introduction to Stochastic Processes: Stat 462/662 (Fall 2021)**
- Lecture twice per week in-person; 15 undergraduate students and 5 graduate students. New preparation and includes simulation exercises in R. Hold office hours twice per week, create and grade all exams, homework, and R exercises/projects. No grader.
- **Instructor - Probability Theory: Stat 461/661 (Spring 2021)**
- Lecture via Zoom twice per week; 72 undergraduate and 6 graduate students, alternate remote synchronous instruction. I encourage in class discussion via chat feature in Zoom as well as traditional discussion and Q&A, hold office hours twice per week, create/proctor/grade exams, manage HW grader, assign grades.

- **Instructor - Pre-Calculus I: Math 126 (Spring 2021)**
- Lecture via Zoom twice per week; 150 undergraduate students, alternate remote synchronous instruction. I encourage in class participation via chat in Zoom as well as traditional discussion/Q&A, hold office hours twice per week, create quizzes/exams, proctor/grade exams, assign grades, and guide TA.
- **Instructor - Probability Theory: Stat 461/661 (Fall 2020)**
- Lecture via Zoom twice per week; 40 undergraduate students, alternate remote synchronous instruction. I encourage in class discussion via chat feature in Zoom as well as traditional discussion and Q&A, hold office hours twice per week, create/proctor/grade exams, manage HW grader, assign grades.
- **Instructor - Stochastic Models and Simulation: Stat 753 (Spring 2020)**
- Lecture twice per week; 15 graduate students (fully online via Zoom after spring break due to COVID-19). Developed/improved simulation component using R in class and in HW/exams. Hold office hours twice per week, create/proctor/grade exams, assign grades to students.
- **Instructor - Pre-Calculus I: Math 126 (Spring 2020)**
- Lecture twice per week; 48 undergraduate students (fully online via Zoom after spring break due to COVID-19). I encourage in class participation, hold office hours twice per week, create quizzes/exams, proctor/grade quizzes and exams, assign grades. "Small" course, no TA.
- **Instructor - Probability Theory: Stat 461/661 (Fall 2019)**
- Lecture twice per week; 38 undergraduate and 8 graduate students. I encourage in class discussion, hold office hours twice per week, create/proctor/grade exams, manage HW grader, assign grades.
- **Instructor - Pre-Calculus I: Math 126 (Fall 2019)**
- Lecture twice per week; 149 undergraduate students. I encourage in class participation, hold office hours twice per week, create quizzes/exams, proctor/grade exams, assign grades, and guide TA.
- **Instructor - Probability and Measure: Stat 706 (Spring 2019)**
- Lecture twice per week; 5 PhD students. I encourage in class participation, hold office hours twice per week, create course exams, proctor/grade exams, grade weekly homework assignments, assign grades. No grader.
- **Instructor - Independent Study: High Dimensional Probability: Math 793 (Spring 2019)**
- Reading course/flipped class, weekly discussion format for graduate student Jeffrey Mei, M.S. Mathematics - Stats option. Generated a comprehensive set of course notes.
- **Instructor - Pre-Calculus I: Math 126 (Fall 2018)**
- Lecture twice per week; 211 undergraduate students. I encourage in class participation, hold office hours twice per week, create quizzes/exams, proctor/grade exams, assign grades, and guide TA.
- **Instructor - Independent Study: Networks and Information Theory: Math 793 (Fall 2018)**
- Reading course/flipped class, weekly discussion format for graduate student Jeffrey Mei, M.S. Mathematics - Stats option. Generated a comprehensive set of notes for future development of such a course at UNR.
- **Instructor - Probability and Measure: Stat 706 (Spring 2018)**
- Lecture twice per week; 7 graduate students. I developed this new course for the Statistics/Data Science PhD program. Encourage in class participation. Hold office hours twice per week, create/proctor/grade exams, grade weekly homework assignments, assign grades. No grader.
- **Instructor - Stochastic Models and Simulation: Stat 753 (Fall 2017)**
- Lecture twice per week; 18 graduate students. Developed a significant simulation component using R in class and in HW/exams. Encourage in class participation. Hold office hours twice per week, create/proctor/grade exams, grade biweekly homework assignments, assign grades. No grader.
- **Instructor - Independent Study: Internship: Stat 490 (Summer 2017)**
- Internship course for undergraduate math major Kyle Feng who interned at EMPLOYERS in Reno. We met several times to discuss his progress; final oral presentation.
- **Instructor - Probability Theory: Stat 461/661 (Spring 2017)**
- Lecture twice per week; 34 undergraduate and 8 graduate students. Encourage in class discussion. Hold office hours twice per week, create course exams, proctor/grade exams, manage HW grader, assign grades.

- **Instructor - Independent Study: Network Theory: Math 499 (Spring 2017)**
- *Mix of small group discussion and lecture for 2 undergraduate math majors. Developed a nice set of working notes to develop a larger such course at UNR in the future.*
- **Instructor - Probability Theory: Math 461/661 (Fall 2016)**
- *Lecture twice per week; 44 undergraduate and 12 graduate students. Encourage in class discussion. Hold office hours twice per week, create/proctor/grade exams, grade weekly homework assignments, assign grades.*
- **Instructor - Independent Study: Time Series Analysis: Stat 793 (Fall 2016)**
- *Project with M.S. graduate student Sunil George, time series analysis of natality data from Canada.*
- **Instructor - Probability Theory: Math 461/661 (Fall 2015)**
- *Lecture twice per week; 36 undergraduate and 3 graduate students. Encourage in class discussion. Hold office hours twice per week, create course exams, proctor/grade exams, grade weekly homework assignments, assign grades to students.*
- **Instructor - Independent Study: Theory of Networks: Stat 793 (Summer 2015)**
- *Graduate seminar course for 6 students, met weekly. Combination of lecture, in class discussion, student presentations, working with data in R. Co-taught and co-organized with Ilya Zaliapin.*
- **Instructor - Statistical Theory: Stat 467/667 (Spring 2015)**
- *Lecture 3 times per week; 15 undergraduate and 2 graduate students. Encourage in class discussion. Hold office hours twice per week, create course exams, proctor/grade exams, grade weekly homework assignments, assign grades to students. No grader.*

Ohio State University:

- **Project Assistant - MBI Summer Undergraduate Research Program (Summer 2014)**
- *Developed computer lab exercises in Matlab to accompany two different tutorials in mathematical biology, led computer lab sessions. Developed and directed a study group (5 students) about complex networks.*
- **Project Director - MBI Summer Graduate Research Program on Mathematical Ecology and Evolution (Summer 2009)**
- *Developed and directed a research project on modeling the evolution of variance in mate choice for a group of 4 graduate students. Met and worked with students daily, provided guidance for an oral presentation.*
- **Instructor - Calculus II for Life Sciences: Math 152L (Winter Qtr 2009)**
- *Lectured 3 times per week for a class of 30 undergraduates, held weekly office hours, co-created exams, proctored/graded exams, assigned grades to students. Organized group projects on solving real-world biological problems using calculus.*
- **Project Mentor - Calculus I for Life Sciences: Math 151L (Fall Qtr 2008)**
- *Created and directed a small group project for 30 students (6 groups of 5 students) which explored population growth in fisheries. Met periodically with each group to provide guidance.*

Cornell University:

- **Instructor - Finite Mathematics in the Life and Social Sciences: Math 105 (Fall 2006)**
- *Lectured 3 times per week for a class of 28 undergraduates. Developed worksheets to encourage in class group work/discussion and "thinking outside of the box". Held weekly office hours, managed the course grader, co-created course exams, proctored/graded exams, assigned grades to students.*
- **Instructor - Calculus I: Math 111 (Fall 2005)**
- *Lectured 3 times per week for a class of 22 undergraduates, created quizzes and detailed review worksheets. Held office hours twice per week, managed the course grader. Contributed problems for exams, proctored/graded exams, assigned grades to students. Worked with interactive online homework assignments (Maple TA).*
- **Seminar Instructor - Ithaca High School Senior Seminar (Spring 2005)**
- *Developed and taught an 8-week course in probability theory and applications for 15 highly motivated seniors at Ithaca High School, in conjunction with Cornell University. Created daily problem sets and solutions.*

- **Teaching Assistant** - Mathematics Dept. Research Experience for Undergraduates: Probability Problems in Genetics (Summer 2003)
- *Along with director Rick Durrett, I worked with 6 undergraduates on 3 separate small group projects.*
- **TA Trainer** - Mathematics Department (Aug 2006)
- **TA Training Participant** - Mathematics Department (Aug 2001)

University of Akron:

- **Project Director** - Mathematics Dept. Research Experience for Undergraduates: Mathematical Population Genetics (Summer 2007)
- *Developed and directed a project on modeling the evolution of blood type distributions in human populations for 2 undergraduates. Worked with students daily, provided guidance for oral presentations and drafting a manuscript.*
- **Peer Tutor** - Math Tutoring Center (Jan 1998 - May 2001)
- *Provided one-on-one tutoring in all areas of undergraduate mathematics, also tutored undergraduate genetics for a deaf student. Level II Tutor Training certification.*
- **Grader** - Linear Algebra (Spring 1999, Spring 2001)

CURRICULUM DEVELOPMENT

New Course Development, UNR:

- **STAT 706: Probability and Measure (2017-2018)**
- *I developed this new required course for the Statistics and Data Science PhD program. I wrote the syllabus, developed all course materials, and taught the first two iterations of the course.*
- **STAT 4xx/6xx: Random Networks (2021-present)**
- *I co-developed this new elective course with Ilya Zaliapin for the Statistics and Data Science PhD and MS programs. I co-wrote the syllabus and will submit the course proposal in curriculum during Spring 2024.*

PhD Qualifying Exam Development, UNR:

- **Probability Exam (2018-present)**
- *Co-developed the syllabus for department's written PhD qualifying exam in Probability, in consultation with graduate program director, and relevant faculty. I co-wrote and graded exams (8/2018, 1/2019, 5/2019, 5/2021, 5/2023, 1/2024) with the exam committee.*

PROFESSIONAL ACTIVITIES AND SERVICE

UNR Departmental Service:

- Merit Committee Chair (Spring 2024 - Fall 2024)
- Merit Committee Member (Spring 2023 - Fall 2023)
- Teaching Mentor for 1 Math/Stat faculty member (Fall 2022 - Spring 2023)
- Faculty Advisor for Mathematics Majors (Applied Math and Statistics emphases) (Fall 2021 - present)
- Statistics Graduate Studies Committee (Fall 2020 - present)
- Faculty Representative for Statistics and Data Science Graduate Programs, Professional and Graduate School Fair, UNR (Oct 2021)
- Observe graduate TAs for Math 126 courses I teach twice per semester (2019-present)

Search Committee Member, Postdoctoral Associate in Math/Applied Math (2019-2020)
 Statistics and Data Science MS Comprehensive Exam Committee, co-write and grade probability exams (Jan 2021 - present, most semesters)
 Statistics and Data Science PhD Qualifying Exam Committee, co-write and grade probability exams (Fall 2018 - present, most semesters)
 Statistics and Data Science Hiring Plan Committee Member (2018)
 Statistics and Data Science PhD Admissions Committee Member (2017, 2018)
 Statistics and Data Science MS Program Development (2017 - 2020)
 Statistics and Data Science PhD Program Development (2015 - 2020)
 Search Committee Member, Asst Professor in Statistics: 4 positions (2017-18)
 Search Committee Member, Asst Professor in Statistics: 3 positions (2016-17)
 Search Committee Member, Postdoctoral Associate: 2 positions, Math & Applied Math (2016)
 Assessment Committee Member, Math/Stat Dept (2017)
 Webpage Committee Member, Math/Stat Dept (2015 - 2018)
 Library Committee Member, Math/Stat Dept (2015 - 2020)
 Departmental Server Acquisition (2017 - 2018)
 Department Welcome Seminar speaker for incoming students (Aug 2015)

UNR College/University Service:

Golden Scholars Math Study Space - Invited study break advisor/leader during finals week (Dec 2023)
 ScienceFIT Math/Stat Department Welcome Seminar speaker (Aug 2023, Aug 2022)

Faculty Director, TechWise Program at UNR (Feb 2022 - present)

- Diversity, equity, and inclusion program in collaboration with Google, TalentSprint, and 4 other US institutions; 37 UNR students in cohort 1 (120 students total nationwide)
- Weekly or bi-weekly meetings with TechWise leadership
- Organized cohort 1 to start in Feb 2022 through Aug 2023
- Organized cohort 2 to start in Mar 2023 through Aug 2024
- Organizing cohort 3 to start in Feb 2024 through Aug 2025
- Helped organize a meeting with CA Congressman Ro Khanna (represents 17th district including Silicon Valley), Provost Thompson, and TechWise students; I gave a presentation on TechWise at the meeting (Feb 2023)
- Organized TechWise Celebration Event for cohort 1 graduates and welcomed cohort 2; I spoke at the event (May 2023)

Proposal Reviewer, Honors Undergraduate Research Awards (Fall 2019)

Search Committee Member, Asst Professor in Computational Neuroscience, Dept of Biology (2016-17)

Search Committee Member, Asst Professor in Computational Neuroscience, Dept of Biology (2017-18)

Affiliated Faculty Member, Integrative Neuroscience Graduate Program (2015 - present)

Association for Women in Mathematics (AWM) New Student Chapter:

Founding Faculty Advisor - AWM Student Chapter at UNR (Spring 2020 - present)

Founding Faculty Advisor - UNR GSA Club (Fall 2020 - present)

Organized Events at UNR:

- Meeting with MSTs, Nevada National Security Site about scholarship funding, UNR (Oct 2023)
- Collaboration with UC Davis AWM Chapter to plan a joint virtual seminar (Spring 2023)

- **STEM Panel: Managing an Academic Career and Preventing Burnout**, Virtual (Apr 2022):
Invited Panelists: Deena Schmidt, Colin Grudzien (Scripps Institution of Oceanography, UCSA), Nakisa Ghanbarian (UNR Math grad student), Chandra Sarkar (UNR Molecular Biosciences grad student)
- AWM Outdoor Social: Hike to the “N”, Reno (Apr 2022)
- AWM Coffee Hour: Get to know new officers and members, in-person event (Oct 2021)
- **Work/Life Balance Panel**, Virtual (Apr 2021):
Invited Panelists: Deena Schmidt, Angela Smilanich (UNR Biology), Yezenia Poulsen (UNR grad student)
- AWM Outdoor Social: Walk at Rancho San Rafael Park, Reno (Apr 2021)
- AWM Virtual Happy Hour (Nov 2020; Jan 2021)
- **Graduate School Panel** for UNR students, Virtual (Nov 2020):
Invited Panelists: Deanna Haunsperger (Carleton College), Angela Reynolds (Virginia Commonwealth University), Catalina Medina (UC Irvine grad student)

Conference/Seminar Organizer:

- Society for Mathematical Biology Annual Meeting, Columbus, OH - Minisymposium Co-organizer “Stochastic Methods in Oncology and Population Dynamics” (Jul 2023)
- SIAM Dynamical Systems Conference, Portland, OR - Minisymposium Co-organizer “Topics in Mathematical Biology” (May 2023)
- SIAM Life Sciences Meeting 2022, Pittsburgh, PA - Organizing Committee Member (Jun 2021 - Jul 2022)
- SIAM Dynamical Systems Conference, Snowbird, UT - Minisymposium Organizer “Stochastic Models in Biology” (May 2019)
- AMS Western Sectional Meeting, Portland State University - Special Session Co-organizer “Biomathematics - Progress and Future Directions” (Apr 2018)
- Society for Mathematical Biology Annual Conference 2017, Salt Lake City, UT - Local Organizing Committee Member (Jun 2016 - Jul 2017)
- AMS Central Sectional Meeting, Michigan State University - Special Session “Biomathematics - Progress and Future Directions” Co-organizer and Session Chair (Mar 2015)
- SIAM Applications of Dynamical Systems, Snowbird, UT - Minisymposium Organizer (May 2013)
- Workshop for Young Researchers in Mathematical Biology, MBI - Co-organizer (Aug 2010, Aug 2009)
- Postdoc Professional Development Workshop Series, MBI - Co-organized with Michael Reed (Spring & Fall 2010)
- MBI Postdoc Seminar - Organizer (Winter Qtr 2010)

Editorial Board:

- Review Editor, *Frontiers in Computational Neuroscience* (2023 - present)

Reviewer:

- National Science Foundation Review Panel (2017)
- Journal of Mathematical Biology*, *Bulletin of Mathematical Biology*, *Journal of Theoretical Biology*, *Theoretical Population Biology*, *Genetics*, *PLoS Genetics*, *PLoS Computational Biology*, *SIAM Journal on Applied Mathematics*, *SIAM Journal on Applied Dynamical Systems*, *Electronic Journal of Probability*, *Applied Probability Journals*, *Advances in Applied Probability*, *Journal of Neural Computation*, *Neuroscience*, *Journal of Molecular Evolution*, *Discrete and Continuous Dynamical Systems B*, *IEEE Transactions on Cybernetics*, *Scientific Reports*, *PLoS One*, *Bio-Complexity*, *Annali di Matematica Pura ed Applicata*, *Statistical Inference for Stochastic Processes*, *Letters in Biomathematics*

Outreach:

Career Day: “Math Professor” presentation in 2nd grade class, Hunter Lake Elementary, Reno, NV (Nov 2023).

STEM Sisters: Training program for high school/undergraduate women interested in science, Invited Talk “Statistical Analysis of Biological Data”, Voyles Lab, UNR (Mar 2023, Jul 2021)

Osher Lifelong Learning Institute (OLLI) Talk on Mathematics and Dance, UNR (Sept 2019)

Nevada Bound Program, Math/Stats Department Representative, UNR (Sept 2021, Apr 2016)

RUMBA Seminar panelist on postdoc research, Ohio State University (Apr 2010)

Expanding Your Horizons - Annual national program that encourages middle school girls to pursue their interests in math and science, Cornell University

- Workshop co-organizer: Math - It’s Contagious! (Apr 2006)

- Workshop assistant: Math Modeling and the Menstrual Cycle (Apr 2005)

- Workshop assistant: Symmetry and Tessellations (Apr 2002)

Peer Mentor for first year graduate students, Center for Applied Mathematics, Cornell University (2003, 2005, 2006)

Graduate student orientation volunteer, Cornell University (Aug 2002, Aug 2003)

Invited Workshops:

Banff International Research Station for Mathematics Innovation and Discovery Workshop: New Mathematical Challenges from Molecular Biology and Genetics (Sept 2009)

SMPosium: Summer Math Program for Women Reunion/Conference, Carleton College (Jun 2007)

REUnion: SACNAS National Conference, Denver (Oct 2005)

Research Programs:

SLMath 2024 Summer Research in Mathematics Program, Berkeley, CA (Accepted for June 2024)

MSRI 2020 Summer Research for Women in Mathematics Program, Berkeley, CA (held virtually in Nov/Dec 2021 due to COVID-19)

IPAM Collaborative Workshop for Women in Mathematical Biology, UCLA (Jun 2019)

IMA Mathematical Modeling in Industry Graduate Student Workshop, University of Minnesota and 3M Pharmaceuticals (Aug 2004)

Program for Women in Mathematics on Mathematical Biology, Institute for Advanced Study and Princeton University (May 2003)

Mathematical and Theoretical Biology Institute Summer Research Program (MTBI), Cornell University (Summer 2000)

Summer Mathematics Program for Women, Carleton and St. Olaf Colleges (Summer 1999)

Other Service / Professional Development:

Poster Judge, Society for Mathematical Biology Annual Meeting, Columbus, OH (Jul 2023)

Mentoring Mentors Workshop Series, UNR (Fall 2022)

Poster Judge, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT (May 2019)

SIAM Member Focus Group participant, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT (May 2013)

CoMC Focus Group participant, Joint MAA/AMS Meetings, San Diego, CA (Jan 2008)

Wrote 6 MBI workshop reports during the MBI annual programs of 2008-2011

REFERENCES

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Richard Durrett, Dept. of Mathematics, Duke University (Emeritus), rtd@math.duke.edu

ASSOCIATION MEMBERSHIPS

Society for Mathematical Biology (2011 - present)

Society for Industrial and Applied Mathematics (2003 - present)

Association for Women in Mathematics (2019 - present)

American Mathematical Society (2001 - present)

Institute of Mathematical Statistics (2008-09)

Society for Advancement of Chicanos/Hispanics and Native Americans in Science (2014 - present)