

# Ryan J. Zerr

UND Department of Mathematics  
101 Cornell St Stop 8376  
Witmer Hall Room 313  
Grand Forks, ND 58202  
701-777-4605

UND College of Arts & Sciences  
501 N Columbia Rd Stop 8038  
Columbia Hall Room 1106  
Grand Forks, ND 58202  
701-777-6063

[ryan.zerr@und.edu](mailto:ryan.zerr@und.edu)

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## Education

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Ph.D., Mathematics, May 2003

Iowa State University (Ames, IA), Advisor: Dr. Justin Peters

Dissertation: *Partial dynamical systems and AF  $C^*$ -algebras*

M.S., Mathematics, May 1998

University of North Dakota (Grand Forks, ND)

B.S., Meteorological Studies, August 1996

University of North Dakota (Grand Forks, ND), Summa Cum Laude

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## Academic Employment

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### Faculty Appointments

Professor of Mathematics

Department of Mathematics

University of North Dakota, Grand Forks, ND

August 2013-present

Associate Professor

Department of Mathematics

University of North Dakota, Grand Forks, ND

August 2009-August 2013

Assistant Professor

Department of Mathematics

University of North Dakota, Grand Forks, ND

August 2003-August 2009

## Administrative/Leadership Positions

Associate Dean for Curriculum  
College of Arts & Sciences  
University of North Dakota, Grand Forks, ND  
January 2019-present

Faculty Fellow for Curriculum  
College of Arts & Sciences  
University of North Dakota, Grand Forks, ND  
August 2018-December 2018

Director  
Essential Studies Program  
University of North Dakota, Grand Forks, ND  
August 2015-December 2018

Associate Chair  
Department of Mathematics  
University of North Dakota, Grand Forks, ND  
August 2013-July 2015

Faculty Fellow  
Division of Academic Affairs  
University of North Dakota, Grand Forks, ND  
June 2014-June 2015

Chair  
University Senate  
University of North Dakota, Grand Forks, ND  
September 2013-September 2014

Coordinator  
First-Year Seminar Program  
University of North Dakota, Grand Forks, ND  
August 2011-May 2015

## Other Academic Positions

- > *Post-Doctoral Trainee*: Iowa State University, June 2003
- > *Graduate Teaching Assistant*: Iowa State University, August 1998-May 2003; UND, January 1997-August 1998
- > *Graduate Research Assistant*: Iowa State University, Summers 2000, 2001, 2002, Fall 2002; UND August 1996-May 1998
- > *Graduate Student Teaching Coordinator*: Iowa State University, August 1999-May 2001
- > *Research Assistant*: UND, Summer 1999
- > *Undergraduate Research Assistant*: UND, May 1995-July 1996
- > *Undergraduate Teaching Assistant*: UND, January 1995-May 1995

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## Awards, Honors, Fellowships, & Other Scholarly Recognition

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- > Interviewed (with UND colleagues Kelsch and Gjellstad) for *The Cutting Ed* podcast: to appear spring 2019
- > Association of American Colleges & Universities (AAC&U) Faculty Fellow for North Dakota: 2016-2017
- > Work (with UND colleagues Carmichael, Kelsch, Kubatova, and Smart) featured in Jan/Feb 2016 article by Hutchings, Jankowski, and Schultz in *Change*
- > AAC&U Scientific Thinking & Integrative Reasoning (STIRS) Fellow: 2015-16
- > AAC&U STIRS Scholar: 2014-15
- > ND Spirit Faculty Achievement Award: 2012
- > ND Spirit Faculty Achievement Award: 2009
- > UND Foundation/McDermott Award for Individual Excellence in Teaching: 2008
- > Leitzel Mathematical Association of America Project NExT Fellowship: 2003

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## Publications & Scholarly Writing

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### Peer-Reviewed Journal Articles

1. Hans Musgrave and Ryan J. Zerr, Infinite series as sums of triangular areas (submitted 2019)
2. Melissa Gjellstad and Ryan Zerr. Faculty Navigating the Age of Austerity: Affirming Roles and Renewing Alliances, *North Dakota Quarterly*, Vol. 85 (to appear)
3. Joan Hawthorne, Ryan Zerr, and Anne Kelsch. Assessment of general education: An unexpected (but effective) faculty development opportunity, in *New Directions for Teaching & Learning* (Wiley), No. 155, Fall 2018.
4. Issac Odegard and Ryan J. Zerr, The quadratic irrationals and Ducci matrix sequences, *Linear Algebra and Its Applications* (2015), pp. 344-355 DOI information: 10.1016/j.laa.2015.07.002
5. Ryan J. Zerr and Elizabeth Bjerke, Using multiple assessments to gauge outcome differences between academically-themed and transition-themed first-year seminars, *Journal of College Student Retention: Research, Theory, & Practice*, 2015
6. Kirsten Hogenson, Shannon Negaard, and Ryan J. Zerr, Matrix sequences associated with the Ducci map and the mediant construction of the rationals, *Linear Algebra and Its Applications*, Vol. 437 (July 2012), Issue 1, 285-293.
7. Jessica M. Zerr and Ryan J. Zerr, Learning from their mistakes: Using students' incorrect proofs as a pedagogical tool, *PRIMUS*, Vol. 21 (2011), No. 6, 530-544.
8. Ryan J. Zerr, A parameterized family of weighted Ducci maps, *Journal of Difference Equations and Applications*, Vol. 16 (2010), No. 11, 1275-1291.
9. Ryan J. Zerr, Promoting students' ability to think conceptually in calculus, *PRIMUS*, Vol. 20 (2010), No. 1, 1-20.

10. Ryan J. Zerr, Equivalence relation groupoids associated with certain linearly ordered dimension groups, *Journal of Mathematical Analysis and Applications*, Vol. 360 (2009), 57-66.
11. Greg Brockman and Ryan J. Zerr, Asymptotic behavior of certain Ducci sequences, *Fibonacci Quarterly*, Vol. 45 (2007), No. 2, 155-163.
12. Ryan J. Zerr, A quantitative and qualitative analysis of the effectiveness of online homework in first-semester calculus, *Journal of Computers in Mathematics and Science Teaching*, Vol. 26 (2007), No. 1, 55-73.
13. Ryan J. Zerr, Minimal Bratteli diagrams and the dimension groups of AF  $C^*$ -algebras, *International Journal of Mathematics and Mathematical Sciences*, Vol. 2006 (2006), article ID 65737, 13 pages.
14. Ryan J. Zerr, On character groups arising from dimension groups, *Proceedings of the American Mathematical Society*, Vol. 134 (2006), No. 6, 1849-1856.
15. Ryan J. Zerr, On minimal dynamical systems and their crossed product  $C^*$ -algebras, *Journal of Mathematical Analysis and Applications*, Vol. 316 (2006), No. 1, 369-372.
16. Ryan J. Zerr, A topological isomorphism invariant for certain AF algebras, *International Journal of Mathematics and Mathematical Sciences*, Vol. 2005 (2005), No. 11, 1665-1673.
17. Melanie B. Butler and Ryan J. Zerr, The use of online homework systems to enhance out-of-class student engagement, *International Journal for Technology in Mathematics Education*, Vol. 12 (2005), No. 2, 51-58.
18. Justin R. Peters and Ryan J. Zerr, Partial dynamical systems and AF  $C^*$ -algebras, *Houston Journal of Mathematics*, Vol. 31 (2005), No. 2, 463-494.
19. J. E. Dye, B. A. Ridley, W. Skamarock, M. Barth, M. Venticinque, E. Defer, P. Blanchet, C. Thery, P. Laroche, K. Baumann, G. Hubler, D. D. Parrish, T. Ryerson, M. Trainer, G. Frost, J. S. Holloway, T. Matejka, D. Bartels, F. C. Fehsenfeld, A. Tuck, S. A. Rutledge, T. Lang, J. Stith, and R. Zerr, An overview of the stratospheric-tropospheric experiment: Radiation, aerosols, and ozone (STERAO)-deep convection experiment with results for the July 10, 1996 storm, *Journal of Geophysical Research*, Vol. 105 (2000), 10023-10045.
20. J. Stith, J. Dye, B. Ridley, P. Laroche, E. Defer, K. Baumann, G. Hubler, R. Zerr, and M. Venticinque, NO signatures from lightning flashes, *Journal of Geophysical Research*, Vol. 104 (1999), 16081-16089.
21. Ryan J. Zerr, Freezing rain: An observational and theoretical study, *Journal of Applied Meteorology*, Vol. 36 (1997), 1647-1661.

## Book Chapters

1. Lisa Bonneau, Anne Kelsch, Ryan Zerr, and Joan Hawthorne (to appear). Assessing the impact of general education on student learning, in *Generally Speaking: The Impact of General Education on Student Learning in the 21st Century*, Ed. Madeline Smith and Kristen Tarantino, Myers, Gorham, ME.
2. Ryan J. Zerr (to appear). Assessing quantitative reasoning as a cumulatively-acquired intellectual skill, in *Shifting Contexts, Stable Core: Advancing Quantitative Literacy in Higher Education*, Ed. Luke

Tunstall, Victor Piercy, and Gizem Karalli, MAA Notes Series, Mathematical Association of America, Washington, D.C.

### Other Peer-Reviewed Academic Writing

1. Kristen Borysewicz, Sarah Cavanah, Christopher Gable, Debra Hanson, Anne Kelsch, Amy Kielmeyer, Anna Kinney, Alena Kubatova, Fred Remer, Rebecca Simmons, and Ryan Zerr (2018). Assessment of essential studies information literacy goal. University of North Dakota, National Institute for Learning Outcomes Assessment (to appear)
2. Carmichael, J., Kelsch, A., Kubatova, A., Smart, K., & Zerr, R. (2015). Assessment of essential studies quantitative reasoning skills. University of North Dakota, National Institute for Learning Outcomes Assessment.
3. Ryan J. Zerr, Congressional Apportionment: Constitutional Questions, Data, and the First Presidential Veto, *Scientific Thinking & Integrative Reasoning Skills Initiative, Association of American Colleges & Universities* (2015).
4. Ryan J. Zerr, Online lecture notes can aid student learning, *The Teaching Professor*, Vol. 18 (2004), No. 10, page 4.

### Invited Contributions

1. Katie Woehl and Ryan Zerr, Picking Up Where We Are in North Dakota, *Peer Review*, Vol. 19 (Summer 2017), No. 3, Association of American Colleges & Universities.
2. Seth Anthony, Wesley Barker, Tami Carmichael, Catherine Pride, and Ryan J. Zerr, Creating intentional pathways: The STIRS institutional phase, *Peer Review*, Vol. 18 (Fall 2016), No. 4, pages 19-22, Association of American Colleges & Universities.
3. Jennifer S. Stanford, Tami Carmichael, Ryan J. Zerr, Loren Byrne, and Richard K. Riegelman, Potential uses of STIRS case studies in courses and curricula, *Peer Review*, Vol. 18 (Fall 2016), No. 4, pages 23-27, Association of American Colleges & Universities.

### General Academic Writing

1. Joan Hawthorne and Ryan Zerr, Performance Tasks as an Outcomes Assessment for Essential Studies, *On Teaching* Vol 25 (Spring 2016), No. 6, UND Office of Instructional Development.
2. Joan Hawthorne, Melissa Gjellstad, and Ryan Zerr, Aligning Assessment: Developing Performance Tasks to Assess GE Outcomes, *Higher Learning Commission Annual Meeting Conference Proceedings*, (2015), accessed 1/7/17 from <http://cop.hlcommission.org/Assessment/hawthorne2015.html>.
3. Elizabeth Bjerke and Ryan Zerr, The first-year experience pilot project: An update, *On Teaching*, Vol. 21 (Spring 2012), No. 7, pages 1 & 3, UND Office of Instructional Development.
4. Brett Goodwin and Ryan Zerr, Update on the Undergraduate Learning Working Group's Plans and Progress, *On Teaching*, Vol. 20 (Fall 2010), No. 1, 1-2, UND Office of Instructional Development.

## Published Reviews

1. *Rigged modules II: Multipliers and duality*, by David P. Blecher, in *Mathematical Reviews* (2017)
2. *On a factorization of operators as a product of an essentially unitary operator and a strongly irreducible operator*, by Geng Tian, Yang Cao, Youqing Ji, and Juexian Li, in *Mathematical Reviews* (2015)
3. *Families index for Boutet de Monvel operators*, by Severino T. Melo, Thomas Schick, and Elmar Schrohe, in *Mathematical Reviews* (2014)
4. *Inverse semigroup actions as groupoid actions*, by Alcides Buss, Ruy Excel, and Ralf Meyer, in *Mathematical Reviews* (2013)
5. *Paratransitive algebras of linear operators*, by L. Livshits, G. MacDonald, L. W. Marcoux, and H. Radjavi, in *Mathematical Reviews* (2013)
6. *On some automorphisms of a class of Kadison-Singer algebras*, by Aiju Dong & Chengjun Hou, in *Mathematical Reviews* (2012).
7. *Revisiting the Farey AF algebra*, by Daniele Mundici, in *Mathematical Reviews* (2012).
8. *A classification of finite rank dimension groups by their representations in ordered real vector spaces*, by Gregory R. Maloney and Aaron Tikuisis, in *Mathematical Reviews* (2011).
9. *Invertible interpolation on  $Ax=y$  in a tridiagonal algebra ALGL*, by Sung Kon Kwak and Joo Ho Kang, in *Mathematical Reviews* (2011).
10. *Strength of convergence in the orbit space of a groupoid*, by Robert Hazelwood and Astrid an Huef, in *Zentralblatt MATH* (2011).
11.  *$C^*$ -algebras and Fell bundles associated to a textile system*, by Valentin Deaconu, in *Zentralblatt MATH* (2010).
12. *An AF algebra associated with the Farey tessellation*, by Florin P. Boca, in *Mathematical Reviews* (2010).
13. *Dimension groups for interval maps II: The transitive case*, by Fred Schultz, in *Zentralblatt MATH* (2008).
14. *Weak mixing properties of vector sequences*, by Laszlo Zsido, in *Zentralblatt MATH* (2008).
15. *Furstenberg transformations on irrational rotation algebras*, by Osaka Hiroyuki and Christopher N. Phillips, in *Zentralblatt MATH* (2007).
16. *Commutants of the Euler operator and corresponding mean-periodic functions*, by Ivan H. Dimovski and Valentin Z. Hristov, in *Zentralblatt MATH* (2007).
17. *Non-separable AF-algebras*, by Takeshi Katsura, in *Mathematical Reviews* (2007).
18. *Single elements and module isomorphisms of some operator algebra modules*, by Dong Zhe, in *Zentralblatt MATH* (2007).

## Abstracts

1. Jessica M. Zerr and Ryan J. Zerr, Using peer reviews in proof-based mathematics courses, *Abstracts of Papers Presented to the American Mathematical Society*, Vol. 30 (2009), No. 1.

2. Ryan J. Zerr, Using character groups to construct AF groupoids, *Abstracts of Papers Presented to the American Mathematical Society*, Vol. 27 (2006), No. 1.
3. Ryan J. Zerr, Detailed feedback as an integral part of an online homework system in calculus, *Abstracts of Papers Presented to the American Mathematical Society*, Vol. 27 (2006), No. 1.
4. Ryan J. Zerr, Minimal Bratteli diagrams and dimension groups of AF C\*-algebras, *Abstracts of Papers Presented to the American Mathematical Society*, Vol. 25 (2004), No. 1.
5. Ryan J. Zerr, A characterization theorem for AF groupoids and some related results, *Abstracts of Papers Presented to the American Mathematical Society*, Vol. 24 (2003), No. 1.
6. J. L. Stith, C. A. Grainger, R. E. Rinehart, A. G. Detwiler, P. L. Smith, and Ryan J. Zerr, Microphysical characteristics of clouds in North Dakota: Implications for seeding decisions, *Preprints from the 13<sup>th</sup> Conference on Planned and Inadvertent Weather Modification*, (1996).
7. Ryan J. Zerr, Wind and reflectivity signatures as obtained by a Doppler radar for a freezing-rain episode, *Preprints from the 27<sup>th</sup> Conference on Radar Meteorology*, (1995).

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## Presentations

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### National/International

1. Ryan Zerr and Anne Kelsch, *General education outcomes assessment: Choosing the right model* (invited workshop), AAC&U General Education and Assessment, Philadelphia, PA, February 15, 2018
2. Ryan Zerr and Edward Aboufadel (organizers), *Career trajectories involving administrative roles: What you may want to consider* (panel discussion), AMS/MAA Joint Mathematics Meetings, San Diego, CA, January 12, 2018
3. Joan Hawthorne and Ryan Zerr, *General education outcomes assessment: Choosing the right model*, AAC&U General Education and Assessment Meeting, Phoenix, 25 February, 2017.
4. Anne Kelsch, Katherine Woehl, and Ryan Zerr, *Discoveries from the Faculty Collaboratives* (roundtable discussion), AAC&U Annual Meeting, San Francisco, January 26, 2017.
5. Seth Anthony, Wesley Barker, Tami Carmichael, Catherine Pride, and Ryan Zerr, *Evidence-based reasoning as a framework for vertically-integrated curricula* (invited workshop), Mercer University – Penfield College, Atlanta, GA, September 29-30, 2016.
6. Ryan Zerr, *High-impact educational approaches at American colleges and universities* (invited lecture), University of Shanghai for Science and Technology, May 25, 2016, Shanghai, China.
7. Anne Kelsch, Marcus Weaver-Hightower, and Ryan Zerr, *Innovative pedagogy and authentic assessment in US higher education* (invited workshop), University of Shanghai for Science and Technology, May 24, 2016, Shanghai, China.
8. Richard Riegelman, Jennifer Stanford, Tami Carmichael, Seth Anthony, Wesley Barker, Catherine Pride, and Ryan Zerr, *LEAP Challenge and STIRS: Integrating Evidence-Based Thinking Throughout the Curriculum*, Association of American Colleges & Universities Annual Meeting, Washington, DC, January 22, 2016.

9. Ryan J. Zerr, Leader of roundtable discussion on *Committing to Equity, Excellence, and Inclusion*, Association of American Colleges & Universities Annual Meeting, Washington, DC, January 20, 2016.
10. Tom Steen and Ryan Zerr, *Gen Ed Course Approvals: Finding an Optimal Process*, Association for General and Liberal Studies Annual Meeting, Milwaukee, WI, September 26, 2015.
11. Seth Anthony, Wesley Barker, Tami Carmichael, Catherine Pride, and Ryan Zerr, *Scientific Thinking and Integrative Reasoning Skills Fellows*, poster presented at the AAC&U Integrative Learning and the Departments Institute, Newark, DE, July 15-18, 2015.
12. Joan Hawthorne, Melissa Gjellstad, and Ryan J. Zerr, *Aligning Assessment: Developing Performance Tasks to Assess GE Outcomes*, Higher Learning Commission Annual Meeting, Chicago, IL, March 29, 2015.
13. Katherine Hunting, Angela Bauer, Richard Riegelman, Justin Armstrong, Lynn Burley, Loren B. Byrne, Tami S. Carmichael, Jill Manske, Sal Meyers, Karen Singer-Freeman, Vandana Singh, Jennifer Stanford, Katie B. Wilson, Adele J. Wolfson, and Ryan J. Zerr, *STIRing Up Learning: Scientific Thinking & Integrative Reasoning through Case Studies*, AAC&U Annual Meeting, Washington, DC, 2015
14. Jessica M. Zerr and Ryan J. Zerr, *Using peer reviews in proof-based mathematics courses*, AMS/MAA Joint Mathematics Meetings, Washington, DC, 2009.
15. Robin Blankenship, Annie Selden, Mary D. Shepherd, and Ryan J. Zerr (panel discussion), *Research collaborations between mathematicians and mathematics educators*, AMS/MAA Joint Mathematics Meetings, Washington, DC, 2009.
16. Ryan J. Zerr, *Using character groups to construct AF groupoids*, AMS/MAA Joint Mathematics Meetings, San Antonio, TX, 2006.
17. Ryan J. Zerr, *Detailed feedback as an integral part of an online homework system in calculus*, AMS/MAA Joint Mathematics Meetings, San Antonio, TX, 2006.
18. Ryan J. Zerr, *Dimension groups, character groups, and AF groupoids*, Groupoidfest 2005, Iowa State University, Ames, IA, 2005.
19. Ryan J. Zerr, *Minimal Bratteli diagrams and dimension groups of AF C\*-algebras*, AMS/MAA Joint Mathematics Meetings, Phoenix, AZ, 2004.
20. Ryan J. Zerr, *Characterizing and studying AF C\*-algebras using partial dynamical systems*, Iowa-Nebraska Functional Analysis Seminar, Drake University, Des Moines, IA, 2003.
21. Ryan J. Zerr, *A characterization theorem for AF groupoids and some related results*, AMS/MAA Joint Mathematics Meetings, Baltimore, MD, 2003.
22. Ryan J. Zerr, *Wind and reflectivity signatures as obtained by a Doppler radar for a freezing-rain episode*, 27<sup>th</sup> Conference on Radar Meteorology, Vail, CO, 1995.

## Regional

1. Ryan Zerr, *Communicating about General Education* (workshop), ND General Education Summit, Valley City State University, October 2017.
2. Kathryn Woehl and Ryan Zerr, *The Faculty Collaboratives Project*, ND General Education Summit, LRSC, Devils Lake, ND, October 28, 2016.



3. Michael Belz, Gary Towne, Tristan Darland, Anita Goldberg, and Ryan Zerr, *Music of the Spheres* (invited panelist), UND College of Arts & Sciences AH! Series, October 24, 2016.
4. Ryan Zerr (as invited moderator): *The Two Cultures* (panel discussion with Brian Greene, Katherine Coles, and Allison Leigh Holt), UND Writers Conference, April 6, 2016
5. Tami Carmichael and Ryan Zerr, *Scientific Thinking & Integrative Reasoning: Solving Unscripted Problems* (invited address), UND College of Arts & Sciences, Arts & Humanities (AH!) Talks, 2015.
6. Selmer Moen, William Martin, Andy Braaten, Sharon Walker, Bryan Schmidt, and Ryan Zerr (panel discussion), *Recruitment of Students and Their Retention in Mathematics and Other STEM Programs*, North Dakota Undergraduate Mathematics Conference, Minot State University, 2014.
7. Ryan J. Zerr, *Being Mathematically Inquisitive: How a Simple Beginning Can Lead to a Wealth of Interesting Questions* (invited keynote address), North Dakota Undergraduate Mathematics Conference, Minot State University, 2013.
8. Theresa Tande, Kim Weismann, and Ryan J. Zerr (panel discussion), *ND's Work on the Interstate General Education Pilot Passport*, ND General Education Summit, Lake Region State College, 2013.
9. Ryan J. Zerr, *Using student peer reviews for more than just essays; Or, how to turn student mistakes into powerful teaching tools*, Reflecting On Teaching Colloquium, UND, Grand Forks, ND, 2011.
10. Ryan J. Zerr, *Learning from their mistakes: Capitalizing on student errors* (poster presentation), Reflecting on Teaching Colloquium, UND, Grand Forks, ND, 2009.
11. Matt Cavalli, Jon Jackson, Evgenii Kozliak, David Pierce, and Ryan J. Zerr, *Scholarship of teaching and learning in STEM disciplines* (panel discussion), Reflecting on Teaching Colloquium, UND, Grand Forks, ND, 2009.
12. Danica Belanus, Eric Timian, and Ryan J. Zerr, *Generalized Ducci sequences* (poster presentation), ND State EPSCoR Conference, NDSU, Fargo, ND, 2009.
13. Ryan J. Zerr, *Replacing pencil-and-paper homework assignments with online homework in freshman-level mathematics courses*, Beyond Boundaries Conference, UND, Grand Forks, ND, 2005.

## Local

1. Ryan Zerr, *Assessment of General Education* (guest lecture), Dr. Donna Pearson's Higher Education Assessment class, November 2018.
2. Melissa Gjellstad, Anne Kelsch, and Ryan Zerr, *Why It Only Makes Sense for Your ES Intercultural Knowledge & Skills Course to be a HIP* (podcast), October 2018
3. Melissa Gjellstad, Anne Kelsch, and Ryan Zerr, *Preparing for the Transition: Upgrade Your Course to ES 2020* (podcast), September 2018
4. Ryan Zerr, et. al. *Faculty/Staff Panel for First-Generation Student Orientation* (invited panelist), UND, June 2018.
5. Ryan Zerr, *TRIO Annual Banquet Keynote Address* (invited keynote), UND TRIO Annual Banquet, East Grand Forks, MN, April 2018.
6. Anne Kelsch and Ryan Zerr, *Diversity & Global Learning as a HIP*, UND Teaching Transformation & Development Academy Session, April 2018.

7. Anne Kelsch, Anna Kinney, and Ryan Zerr, *HIPs Assignment Design Charrette* (workshop), UND Teaching Transformation & Development Academy, April 2018.
8. Ryan Zerr, *UND's New Promotion, Tenure, & Evaluation Standards*, UND Alice T. Clark Program, April 2018.
9. Ryan Zerr, et. al., *Faculty Panel for Admitted Student Day* (invited panelist), UND Enrollment Services, March 2018.
10. Anne Kelsch and Ryan Zerr, *Embedding HIPs Strategically*, UND Teaching Transformation & Development Academy Session, February 2018.
11. Anne Kelsch and Ryan Zerr, *What are HIPs? Why are They Effective (and How Do We Know)?*, UND Teaching Transformation & Development Academy Session, January 2018.
12. Ryan Zerr, *Assessment of the Essential Studies Program* (guest lecture), Dr. Casey Ozaki's *Higher Education* class, November 2017.
13. Angie Carpenter and Ryan Zerr, *Essential Studies* (invited presentation), UND Advising Symposium, September 2017.
14. Dana Harsell, Kathryn Rand, and Ryan Zerr, *Shared Governance* (invited panelist), Alice T. Clark Program, February 7, 2017.
15. Anne Kelsch, Joan Hawthorne, and Ryan Zerr, *Alice T. Clark Forum: The Essential Studies assessment process*, UND, November 29, 2016.
16. Ryan Zerr, *Assessment of the Essential Studies Program* (guest lecture), Dr. Casey Ozaki's *Higher Education Assessment* class, November 17, 2016.
17. Ryan Zerr, *Graduate school considerations for first-generation students* (invited presentation), McNair Scholars Forum, UND, November 15, 2016.
18. Tanya Butler, Ryan Zerr, et. al., *First Generation Student Panel Discussion* (invited panelist, panel moderated by Allison Hurst), UND College of Arts & Sciences, September 7, 2016.
19. Ryan Zerr (guest lecture), *General Education and Essential Studies at UND*, Dr. Joan Hawthorne's *Higher Education* graduate class, 2016.
20. Lori Robison and Ryan Zerr, *Essential Studies Program Revisions: An Update*, University Senate forum, November 19, 2015.
21. Ryan Zerr (invited), *Basics of Parliamentary Procedure*, ND State Staff Senate Meeting, 2015 (September 28)
22. Melissa Gjellstad and Ryan Zerr (invited), *Meetings 101*, UND Learning & Development Program, 2015
23. Melissa Gjellstad and Ryan Zerr (panel discussion), *Shared Governance*, Alice T. Clark Mentoring Program for Clinical Faculty, 2015
24. Melissa Gjellstad, Robert Kelley, and Ryan Zerr (panel discussion), *Shared Governance*, Alice T. Clark Mentoring Program, 2015.
25. Ryan Zerr (guest lecturer), *Program Prioritization*, Dr. Myrna Olson's *Issues and Trends in Higher Education* class, 2014.
26. Patti Aleva, Whitney Berry, and Ryan Zerr (panel discussion), *Exemplary College Teaching*, Dr. Myrna Olson's *College Teaching* class, 2014.
27. Melissa Gjellstad, Robert Kelley, and Ryan Zerr (panel discussion), *Shared Governance*, Alice T. Clark Mentoring Program, 2014.

28. Melissa Gjellstad and Ryan Zerr, *Q&A about Faculty Leadership*, Shared Governance & Leadership Interest Group Workshop, 2013.
29. Elizabeth Bjerke, Anne Kelsch, Yvette LaPierre, Mark Magness, Stacey Borboa Peterson, and Ryan J. Zerr, *Engaging UND's 2012 First-Year Students Workshop*, UND, Grand Forks, ND, 2012.
30. Ryan J. Zerr, *First-year experience seminar program*, Summer 2012 New Student Orientation Advisor Training, UND Grand Forks, ND, 2012.
31. Elizabeth Bjerke and Ryan J. Zerr, *First-year experience pilot project* (poster presentation), 2012 Exceptional UND Showcase, UND, Grand Forks, ND, 2012.
32. Elizabeth Bjerke and Ryan J. Zerr, *First-year experience: pilot project*, Spring 2012 & Fall 2011 UND Advising Workshop, UND, Grand Forks, ND, 2011-12.
33. Elizabeth Bjerke, Missy Burgess, Nikki Berg Burin, Casey Ozaki, and Ryan J. Zerr, *Teaching courses that are student-centered by design: Checking in with the first-year experience (FYE) pilots* (panel discussion), UND Office of Instructional Development On Teaching Seminar, UND, Grand Forks, ND, 2012.
34. Ryan J. Zerr and Sonia Zimmerman, *The pre-SGID preparation process*, SGID Training Session, UND, Grand Forks, ND, 2011.
35. Ryan J. Zerr, *An update on the Undergraduate Learning Working Group*, Fall 2010 UND Advising Workshop, UND, Grand Forks, 2010.
36. Brett Goodwin and Ryan J. Zerr, *Update on the Undergraduate Learning Working Group*, A Campus Conversation with the ULWG, UND, Grand Forks, ND, 2010.
37. Brett Goodwin, Kathryn Rand, and Ryan J. Zerr, *Planning for tenure and promotion* (panel discussion), UND Alice T. Clark Mentoring Program, 2009.
38. Roxanne Hurley, Dexter Perkins, Robert Wood, and Ryan J. Zerr, *Innovative approaches to assess student learning* (panel discussion), UND Alice T. Clark Mentoring Program, 2008.
39. Patrick O'Neill and Ryan J. Zerr, *Quantitative reasoning* (panel discussion), UND Office of Instructional Development On Teaching Seminar, 2007.
40. Anne Kelsch and Ryan J. Zerr, *The general education requirements committee at UND* (panel discussion), UND Alice T. Clark Mentoring Program, 2007.
41. Ryan J. Zerr, *Numerical literacy in freshman composition*, Guest Lecture for English 120 at UND, March 2004, November 2004, August 2005.
42. Ryan J. Zerr, *A characterization theorem for AF groupoids* (2 talks), Algebra-Combinatorics Seminar, Iowa State University, Ames, IA, 2002.
43. Ryan J. Zerr, *An examination of the Lipschitz condition*, Colloquium, UND Mathematics Department, Grand Forks, ND, 1998

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## Grants

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### Funded

1. Sarah Cavanah, Alena Kubatova, Gregory Vandenberg, and Ryan Zerr, *The English Coulee Physiochemical Environment: Modeling, Analysis, and Public Outreach*, UND College of Arts & Science Undergraduate Research/Creative Activity Awards: \$3000 awarded, 2018.
2. Alena Kubatova (PI), Rebecca Simmons, Greg Vandenberg, Daphne Peterson, Shari Nelson (co-PIs), Ryan Zerr et. al. (senior personnel), *US MASTER II*, NSF S-STEM Program: \$999,952 awarded (2018).
3. Ryan Zerr, *Faculty Collaboratives Fellowship*: AAC&U. ~\$15,000 awarded (2016-17)
4. Tami Carmichael and Ryan Zerr, *STIRS II*: AAC&U. ~\$10,000 awarded (2015-17)
5. Ryan Zerr, *STIRS I*: AAC&U. ~\$10,000 awarded (2014-15)
6. Alena Kubatova (PI), Brett Goodwin, Rebecca Simmons, Gregory Vandenberg, and Ryan J. Zerr (co-PIs), *Undergraduate studies with environmentally oriented research*, National Science Foundation: \$598,110 awarded (2011-16).
7. Ryan J. Zerr, *Generalized Ducci sequences*, ND EPSCoR Advanced Undergraduate Research Awards Program: \$10,766 awarded (2009).
8. Ryan J. Zerr, *Page Charges Publication Grant*, UND Senate Scholarly Activities Committee: \$224.87 awarded (2008).
9. Ryan J. Zerr, *A peer review process in mathematics*, UND Office of Instructional Development: \$750 awarded (2008).
10. Ryan J. Zerr, *Weighted Ducci maps*, ND EPSCoR Advanced Undergraduate Research Awards Program: \$10,971 awarded (2006).
11. Ryan J. Zerr, *Strategies for teaching Calculus I*, Bush Teaching Scholars Program: \$3000 awarded (2006-07).
12. Ryan J. Zerr, *Grant for travel to the 2006 Joint Mathematics Meetings*, UND Senate Scholarly Activities Committee: \$259.79 awarded (2006).
13. Ryan J. Zerr, *Developing an online homework component for Mathematics 165*, UND Office of Instructional Development: \$3000 awarded (2004).

### Requested (Unfunded)

1. Casey Ozaki, Deborah Worley, Emily Cherry, Andre Kehn, and Ryan Zerr, *What's in a Major? Exploring Contributions of Academic Disciplines to Learning Outcomes*, Spencer Foundation: \$49,522 requested (2018).
2. Paul Kelter (PI), Jeff Carmichael, Sharon Marcotte, Jill Motschenbacher, Sarah Sletten (co-PIs), Ryan Zerr et. al. (senior personnel), *Frameworks-ND: Long-term collaborative frameworks among North Dakota campuses for STEM instructional success*, NSF-IUSE Program: \$2,988,499 requested (2017).

3. Alena Kubatova (PI), Rebecca Simmons, Greg Vandeberg, Daphne Peterson, Shari Nelson (co-PIs), Ryan Zerr et. al. (senior personnel), *US MASTER II: Expressive Mentoring & Interdisciplinary Research*, NSF S-STEM Program: \$999,473 requested (2016).
4. Ryan J. Zerr, *Mathematics & Politics*, UND Office of Instructional Development FYE Summer Instructional Development Professorship: \$4000 requested (2011).
5. Ryan J. Zerr (PI), Brett Goodwin and Steven Light (co-PIs), *Changing early college experiences to improve academic success*, US Department of Education Fund for the Improvement of Postsecondary Education Comprehensive Program: \$1,517,592 requested (2010).
6. Ryan J. Zerr (PI), Richard Millsbaugh and Fred Remer (co-PIs), *The UND STEM talent expansion program*, National Science Foundation: \$986,500 requested (2009).
7. Alena Kubatova (PI), Brett Goodwin, Rebecca Simmons, Gregory Vandenberg, and Ryan J. Zerr (co-PIs), *Undergraduate studies with environmentally oriented research*, National Science Foundation: \$595,849 requested (2009).
8. Ryan J. Zerr, *CURM Undergraduate Research*, Center for Undergraduate Research in Mathematics – BYU: \$19,000 requested (2009).
9. Ryan J. Zerr, *CURM Undergraduate Research*, Center for Undergraduate Research in Mathematics – BYU: \$16,500 requested (2008).
10. Ryan J. Zerr and David Yearwood (co-PIs), *A multidimensional approach to online calculus homework with a diverse feedback feature*, National Science Foundation: \$142,042 requested (2006).
11. Ryan J. Zerr and David Yearwood (co-PIs), *A multidimensional approach to online calculus homework with a diverse feedback feature*, National Science Foundation: \$117,675 requested (2005).
12. Ryan J. Zerr, *Inverse semigroups and AF C\*-algebra dimension groups*, National Science Foundation: \$71,804 requested (2004).

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## Teaching

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### Mathematics Courses – Term-Based/Face-to-Face

College Algebra, Pre-calculus, Introduction to Mathematical Thought, Applied Calculus, Transition to Calculus, Calculus I, Calculus II, Calculus III, Introduction to Linear Algebra, Elementary Differential Equations, History of Mathematics, Applied Statistical Methods, Set Theory & Logic, Introduction to Analysis I, Introduction to Analysis II, Numerical Analysis I, Numerical Analysis II, Mathematics Senior Capstone, Topology I (graduate), Topology II (graduate)

### Mathematics Courses – Self-Paced/Online

Pre-calculus

## Mathematics Courses – Content Courses for In-Service Teachers

Algebra & Geometry for Middle School Teachers, Probability & Statistics for Middle School Teachers, Calculus Concepts for Middle School Teachers, Discrete Mathematics for Middle School Teachers, Practicum in Middle School Mathematics

## Other Teaching

US MASTER Scholarship Seminar

## Undergraduate Research Supervised

Travis Wolf (B.S. 2007): Honors Thesis and ND EPSCoR AURA Program

Greg Brockman: 2007 Intel Science Talent Search

Kirsten Hogenson (B.S. 2010)

Phil Brockman: ND High School Science Fair

Eric Timian (B.S. 2011): ND EPSCoR AURA Program

Danica Belanus (B.S. 2010)

Shannon Negaard (B.S. 2010)

Jedediah Johnson (B.S. 2013)

Issac Odegard

Patrick Durkin (B.S. 2012)

Travis Reimers

Hans Musgrave (B.S. 2016)

Thomas Devine (B.S. 2018): McNair Program

Jacob Johnson (B.S. anticipated 2019): US MASTER Program

Allan Millar (B.S. anticipated 2019): US MASTER Program

Matthew Picklo (B.S. anticipated 2019): Arts & Sciences Undergraduate Research/Creative Activity Grant

Andrew Abraham (B.S. anticipated 2020): US MASTER Program

## Graduate Student Advisees

### *Independent Study Advisor*

Daniel Perlov (M.S. 2006): *Measure Theory and  $\sigma$ -algebras*

Travis Stepan (M.S. 2007): *The Riesz Representation Theorem*

Ryan Ogren

Grant Bowker (M.S. 2017): *Matrix Groups and Their Lie Algebras*

Hans Musgrave (M.S. 2018): *Non-Standard Analysis*

*Doctoral Dissertation Committee Member*

Aldo Camargo (Ph.D. Engineering 2010), Taehee Han (Ph.D. Engineering 2010), Yassin Labyed, Jacob Bell (Ph.D. Communication & Public Discourse 2014), Teresa Shume (Ph.D. Teaching & Learning 2014), Rebecca Petrik (Ph.D. Teaching & Learning 2016), Malia Young, Sherry Lawdermilt

## Course & Curriculum Development

- > Pre-calculus (online): 2007
- > Mathematics Content (5 courses) for In-Service Middle School Teachers in support of grant project: *Improving Math and Science Literacy of Middle and High School Students of North Dakota Through Teacher-Faculty Partnerships* (in collaboration with Michele Iiams): 2007-2010
- > UND First-Year Seminar Program (in collaboration with Elizabeth Bjerke): 2011-2015
- > Case Study and 4-year Integrated Curriculum in support of the AAC&U Scientific Thinking & Integrative Reasoning Skills Program (in collaboration with Tami Carmichael): 2014-2016
- > Minor in Essential Studies (in collaboration with the Essential Studies Committee): 2017-2018

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## Service

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### Departmental

Annual Faculty Evaluation Committee (multiple years), College Algebra & Applied Calculus Committee (2013-15), Math Club Advisor (2005-13), Applied Mathematics Committee (2003-15), Math Track Meet Committee (2003-present), Math Track Meet Exam Writer (multiple years), Ad-Hoc Graduate Student Recruiting Committee (2008-09), Ad-Hoc Undergraduate Curriculum Update Committee (2007-09), Executive Committee (2004-07; chair 2006-07), New Hire Screening Committee (2004-07), Ad-Hoc Graduate Program Review Committee (2006)

### College/University

University Senate (multiple years, chair 2013-14, Executive Committee 2012-15), University Senate Committee on Committees (2013-14, 2018-present), Essential Studies Committee (2015-2018), University Curriculum Committee (2015-2018), University Senate Budget Committee (2015-2018), University Assessment Committee (2015-2018), Faculty/Staff Reading Group Facilitator (multiple years; topics include the liberal arts, collaborative governance, and teaching/learning), Promotion, Tenure, & Evaluation Working Group (2014-18, co-chair with Steve Light), Strategic Plan Goal #1 Implementation Team (2017-2018), UND High-Impact Practices Taxonomy Development (2018, leading two groups; member on one additional group), HLC Assurance Reporting Team (2016-18, co-lead with Becky Simmons for Criterion 3), Alice T. Clark Program mentor (2016-18), Liberal Arts Strategic Initiative Working Group (2016-17, as part of larger strategic planning activity), UND Diversity Advisory Council (2016-17), UND Strategic Optimization and Alignment Review Committee (2014-15), Essential Studies Assessment Task Development and Scoring (multiple years), Ombuds Search Committee (2014-15, co-

chair with Cheri Williams), Engage UND Working Group (2014-15), Study Abroad Exchange Award Committee (2014), Ombuds/Conflict Management Advisory Committee (2013-17, co-chair with Cheri Williams), Faculty Evaluation/Promotion Committees (multiple years), Arts & Sciences Strategic Planning Process (2013), Budget Model Redesign Steering Committee (2013-14), UND President's Cabinet (2013-14), University Senate Legislative Affairs Committee (2013-14), Strategic Enrollment Management Committee (2013-14), VPFO/VPAA Facilities Access Committee (2013-14), University Senate Faculty Handbook Committee (2012-13), UND First-Year Experience Cabinet (2012-13), HLC Self-Study Criterion Group (2011-13, Criterion 3), OID SCALE-UP Classroom Planning Committee (2010-11), Graduate/Undergraduate Program Review Committees (2009, 2010), Undergraduate Learning Working Group (2009-11, co-chair with Brett Goodwin), Small Group Instructional Diagnostic Consultant (2007-present), Arts & Sciences Curriculum Committee (2008-11), Welcome Weekend Faculty Participant (2004-08, 2010-11), OID *Reflecting on Teaching* Poster Session Organizer (2009), Editor (with Anne Kelsch) of *Models of Innovation & Best Practices in Teaching & Learning at UND* (2009), NDUS General Education Summit Planning Committee (2009), Director of Essential Studies Search Committee (2008), Essential Studies Steering Committee (2007-08), General Education Task Force (2007), General Education Requirements Committee (2005-09, chair 2007-08), School of Engineering & Mines FE Review Session Leader (2004-08, 1 session per semester), Arts & Sciences Election Committee (2004-07)

## Professional

ND General Education Council (2015-present, President 2017-18), Western Interstate Commission on Higher Education (WICHE) Interstate Passport Institutional Liaison (2016-2018), WICHE Interstate Passport Institutional Liaison Advisory Committee (2018), ND State Science & Engineering Fair Judge (multiple years), NDUS Math Discipline Group (2013-15), Project NExT Consultant (2013-15), Mathematical Association of America Committee on MAA/Department Liaisons (2009-2015), NDUS General Education Quantitative Literacy Proficiency Statement Development Team (2014), Reviewer for the National Resource Center for the First-Year Experience Excellence in Teaching First-Year Seminars Award (2013), WICHE Passport Learning Outcomes Criteria Development Team for Quantitative Reasoning (2012-13), Organizing Committee for the Mid-states Conference for Undergraduate Research in Computer Science and Mathematics (2009, 2011), Mathematical Association of America North-Central Section Fall 2009 Meeting Organizing Committee, American Mathematical Society/Mathematical Association of America Undergraduate Poster Session Judge (2009), Member-at-Large for the Governing Board of the MAA North-Central Section (2006-08), National Council of Teachers of Mathematics Teacher Advisory Panel Member (2005-05), Reviewed for *Mathematics Magazine*, *Electronic Journal of Linear Algebra*, *Scientiae Mathematicae Japonicae*, *Journal of Difference Equations and Applications*, *Rose Hulman Undergraduate Research Journal*, *PRIMUS*, *Journal of Geophysical Research – Atmospheres*, *ND Council of Teachers of Mathematics Journal*, *International Journal for Technology in Mathematics Education*, Wiley, Chapman and Hall/CRC Press