Drew Lewis

Department of Mathematics and Statistics
University of South Alabama
411 University Boulevard North
Mobile, AL 36688-0002

Email: drewlewis@southalabama.edu
Telephone (office): (251) 341-3094
http://www.drew-lewis.com

Education

2012 Ph.D. in Mathematics, Washington University in St. Louis
2008 M.A. in Mathematics, Washington University in St. Louis
2006 B.S. in Mathematics, University of Alabama

Professional Experience

2020– Associate Professor & Graduate Coordinator, Department of Mathematics & Statistics, University of South Alabama
2016–2020 Assistant Professor, Department of Mathematics & Statistics, University of South Alabama
2012–2016 Assistant Professor, Department of Mathematics, University of Alabama

Awards and Certifications

Best Paper Award, Team-Based Learning Collaborative, 2020
Best Poster Award, Team-Based Learning Collaborative Annual Conference, 2019
Team-Based Learning Certified Trainer-Consultant, Team-Based Learning Collaborative, 2019
TeamUSA QEP Educator of Distinction, USA Quality Enhancement Program, 2018
Most Engaged New Faculty Member, USA Innovations in Learning Center, 2017
Robert McDowell Teaching Award, Washington University, 2011
B.B. Comer Mathematics Prize, University of Alabama, 2006

Publications

Open Educational Resources

1. S. Clontz and **D. Lewis**. *Linear Algebra for Team-Based Inquiry Learning*. 2021

Educational Research and SoTL

2. C. W. Parrish, **D. Lewis**, S. Clontz, J. Estis, and B. Morton. Team-based inquiry learning: An inclusive framework for implementing cognitively demanding tasks in secondary mathematics. *Submitted*, 2021.
3. **D. Lewis**. Impacts of standards-based grading on students' mindset and test anxiety. *Journal of Scholarship of Teaching and Learning*, 22(2):67–77, 2022.
4. J. K. Takemoto, **D. Lewis**, C. W. Parrish, L. Coyne, and C. M. Burns. Team learning in a technology-driven era. In L. O. Campbell, R. Hartshorne, and R. F. DeMara, editors, *Perspectives on Digitally-Mediated Team Learning*, pages 33–51. Springer International Publishing, Cham, 2021.
5. C. W. Parrish, S. K. Guffey, D. S. Williams, J. M. Estis, and **D. Lewis**. Fostering cognitive presence, social presence and teaching presence with integrated online—team-based learning. *TechTrends*, 65:1–12, 2021.
6. C. Parrish, **D. Lewis**, and S. Moye. Assuring students' readiness for cognitively demanding tasks. *Reflections*, 14:1–12, 2021.
7. **D. Lewis**, S. Clontz, and J. Estis. Team-based inquiry learning. *PRIMUS*, 31(2):223–238, 2021.
8. **D. Lewis** and J. Estis. Improving mathematics content mastery and enhancing flexible problem solving through team-based inquiry learning. *Teaching & Learning Inquiry*, 8(2):165–183, 2020.

9. J. Elsinger and **D. Lewis**. Applying a standards-based grading framework across lower level mathematics courses. *PRIMUS*, 30(8-10):885–907, 2020.
10. S. Clontz, T. Hitchman, B. Katz, **D. Lewis**, and K. Owens. Talk Math With Your Friends, a virtual colloquium. *MAA Focus*, 40:10–11, 2020.
11. C. M. Topaz, J. Cart, C. Diaz Eaton, A. Hanson Shrout, J. A. Higdon, K. Ince, B. Katz, **D. Lewis**, J. Libertini, and C. M. Smith. Comparing demographics of signatories to public letters on diversity in the mathematical sciences. *PloS one*, 15(4):e0232075, 2020.
12. **D. Lewis**. Gender effects on re-assessment attempts in a standards-based grading implementation. *PRIMUS*, 30(5):539–551, 2020.
13. **D. Lewis**. Student anxiety in standards-based grading in mathematics courses. *Innovative Higher Education*, 45(2):153–164, 2020.
14. **D. Lewis**. Social media as a teaching resource. *AMS Blog On Teaching and Learning Mathematics*, 2016.

Mathematics Research

15. **D. Lewis**. A unified approach to embeddings of a line in 3-space. *Submitted*, 2022. arXiv:2203.08178.
16. **D. Lewis**. Normal subgroups generated by a single polynomial automorphism. *Transformation Groups*, 25:177–189, 2020.
17. E. Edo and **D. Lewis**. Co-tame polynomial automorphisms. *International Journal of Algebra and Computation*, 29(05):803–825, 2019.
18. **D. Lewis**, K. Perry, and A. Straub. An algorithmic approach to the polydegree conjecture for plane polynomial automorphisms. *Journal of Pure and Applied Algebra*, 223(12):5346–5359, 2019.
19. E. Edo and **D. Lewis**. The affine automorphism group of $\mathbb{A}^3$ is not a maximal subgroup of the tame automorphism group. *Michigan Mathematics Journal*, 3:555–568, 2015.
20. E. Edo and **D. Lewis**. Some families of polynomial automorphisms III. *Journal of Pure and Applied Algebra*, 219(4):864–874, 2015.
21. **D. Lewis**. Strongly residual coordinates over $A[x]$. In *Automorphisms in birational and affine geometry*, pages 407–430. Springer, Cham, 2014.
22. **D. Lewis**. Vénéreau-type polynomials as potential counterexamples. *Journal of Pure and Applied Algebra*, 217(5):946–957, 2013.
23. C. R. Johnson, **D. Lewis**, and Y. Zhang. Arbitrariness of jordan structure in factorization: the geometric multiplicity restriction and the 3×3 case. *Asian-European Journal of Mathematics*, 5(03):1250036, 2012.
24. C. R. Johnson, **D. Lewis**, and Y. Zhang. Further geometric restrictions on jordan structure in matrix factorization. *Asian-European Journal of Mathematics*, 5(02):1250018, 2012.

Editorial contributions

25. J. Feldvoss, L. Grimley, **D. Lewis**, A. Pavelescu, and C. Pillen. Advances in algebra: SRAC 2017, Mobile, Alabama, USA, March 17-19, 2019.

Grants

1. **Lewis, D. (Principal)**, Clontz, S. (Co-principal), Parrish, C. (Co-principal), Estis, J. (Co-principal), Chaudhury, R. (Co-principal)."Transforming Lower Division Undergraduate Mathematics Through Team-Based Inquiry Learning", National Science Foundation, $579,762 (October 2020 – September 2023)
2. **Lewis, D. (Principal)**. "The effects of math anxiety, test anxiety, and communication apprehension on voluntary reassessments in a standards-based grading environment", University of South Alabama, $1000 (August 2018 – August 2019)
3. **Lewis, D. (Principal)**, Clontz, S. (Principal). "TBL in Linear Algebra", University of South Alabama, $1000 (July 2017 – July 2018)

4. Green, A. M. (Principal), Estis, J. (Supporting), Parrish, C. (Supporting), Johnson, T. (Supporting), **Lewis, D. (Supporting)**, Pillen, C. (Supporting), Martin, S. F. (Supporting). "RONA: Research Opportunities for Noyce Alumni (PTM-Math)," National Science Foundation, $173,840. (June 2017 - June 2018).

Faculty Development Workshops

Multi-Day Workshops

Team-Based Inquiry Learning Summer Institute II, with R. Chaudhury, S. Clontz, J. Estis, and C. Parrish, August 2022.

- 3 day workshop training post-secondary mathematics faculty in Team-Based Inquiry Learning, as part of our NSF IUSE project.

Team-Based Inquiry Learning Summer Institute, with R. Chaudhury, S. Clontz, J. Estis, and C. Parrish, July 2021.

- 5 day workshop training post-secondary mathematics faculty in Team-Based Inquiry Learning, as part of our NSF IUSE project.

Closing the Preparation Gap Workshops, with S. Clontz, J. Estis, and C. Parrish, July 2019.
Closing the Preparation Gap Workshop, with S. Clontz and C. Parrish, Fall 2018

- These two workshops were focused on introducing secondary mathematics teachers to Team-Based Learning, with specific focuses on implementing cognitively demanding tasks in their courses, and in ensuring their students activated prerequisite knowledge essential to engaging with these tasks.

Building the Pedagogical and Content Knowledge of Teachers of Algebra, with C. Parrish, Fall 2017.

- 3 day workshop for local secondary mathematics teachers focused on enhancing their algebra content knowledge through multiple representations of concepts.

Single-Day Workshops

An Introduction to Ungrading, with C. Lewis, Workshop presented at USA Conference on Teaching and Learning, 5/11/22
An Introduction to Team-Based Inquiry Learning, with S. Clontz, Workshop presented at Joint Mathematics Meetings, 4/6/22
Alternative Grading, with S. Clontz, USA Faculty Development Day, 1/6/22
Rehumanizing Assessment: Outcomes-Based Grading, with K. Mattaini, Davidson College, 5/25/21
Outcomes-Based Grading, with K. Mattaini, Davidson College, 1/28/21.
Algebra Through Multiple Representations, with C. Parrish, Workshop presented at Southeastern Regional Robert Noyce Conference, 6/24/19
An Introduction to Team-Based Learning, with A. Salerno, Workshop presented at National Inquiry Based Learning and Teaching Conference, 6/6/19
Facilitating Collaborative Learning in Mathematics Courses, with S. Clontz, Department of Mathematics & Statistics Colloquium, 3/28/19
Standards Based and Specifications Grading: Shifting Student Focus from Earning Points to Learning, Workshop presented at Team-Based Learning Collaborative Annual Meeting, Tampa, 3/15/19
Standards Based and Specifications Grading: Shifting Student Focus from Earning Points to Learning, USA Innovations in Learning Center Collaborative Workshop Series, 2/5/19
An Introduction to Team-Based Learning, with S. Clontz, Workshop presented at MAA Mathfest, 8/2/18
Assessing Student Performance with Standards-Based Grading in your TBL Course, TeamUSA QEP Workshop, 10/25/17
Standards Based Grading: Shifting Student Focus from Earning Points to Learning, Workshop presented at USA Conference on Teaching and Learning, 5/9/17
Standards Based and Specifications Grading for TBL, TeamUSA QEP Workshop, 4/4/17
Specifications Grading: Restoring Rigor, Motivating Students, and Saving Faculty Time, USA Faculty Development Day, 1/5/17

Research Presentations

Educational Research and SoTL

Developing Flexible Problem Solving Skills in Mathematics Courses Through Team-Based Inquiry Learning, with J. Estis, International Society for the Scholarship of Teaching and Learning Annual Conference, 10/11/19

Effects of Math Anxiety and Test Anxiety on Voluntary Reassessments in Standards-Based Grading, SoTL Commons Conference, Georgia Southern University, 1/25/19

Factors Affecting Student Participation in Voluntary Reassessments in SBG, MAA Mathfest, 8/4/18

Acting on A Hunch: Effects of Team-Based Inquiry Learning in a Math Course, with S. Clontz, USA Conference on Teaching and Learning, 5/7/18

Mathematics Research

A unified approach to embeddings of $\mathbb{C}$ *in* $\mathbb{C}^3$, Southern Regional Algebra Conference, 3/20/22

The polydegree conjecture for plane polynomial automorphisms, Southern Regional Algebra Conference, 4/6/19

The ind-group structure of the group of polynomial automorphisms of $\mathbb{C}^n$, Algebra and Topology Seminar, University of Alabama, 11/26/18

Subgroups of the group of polynomial automorphisms of affine space, Southern Regional Algebra Conference, 4/21/18

The polydegree conjecture and related conjectures, Polynomial Rings and Affine Algebraic Geometry, Tokyo, Japan, 2/16/18

Cotame automorphisms of polynomial rings, Special Session on Recent Advances in Commutative Algebra, AMS Fall 2015 Southeastern Section Meeting, 10/18/15

When is a polynomial a coordinate?, Department Colloquium, University of Southern Mississippi, 1/23/15

A combinatorial approach to some questions from affine algebraic geometry, 3rd annual Mississippi Discrete Mathematics Workshop, 11/15/14

Some polydegree properties of automorphisms of the plane, International Conference on Affine Algebraic Geometry and the Jacobian Conjecture, Chern Institute of Mathematics, Tianjin, China, 7/25/14

Strongly residual coordinates, Southern Regional Algebra Conference, 3/16/13

Affine fibrations and Vénéreau-type polynomials, AMS Contributed Paper Session on Algebraic Geometry, Joint Mathematics Meetings, 1/6/12

Coordinates and coordinate-like polynomials, Department Colloquium, Radboud University Nijmegen, 11/30/11

A note on the Vénéreau polynomials, Special Session on Algebraic Group Actions on Affine Varieties, AMS Fall 2010 Central Section Meeting, 11/7/10

Organizing Committees

Talk Math With Your Friends, virtual colloquium series, March 2020–
Strategic Taskforce to Amplify Mathematics Pathways, state leadership team, 2019–
Data Science and Social Justice: Networks, Policy, and Education, ICERM, June-July 2023
Data Science and Social Justice: Networks, Policy, and Education, ICERM, June-July 2022
The Grading Conference, virtual, June 2022
Mastery Grading Conference, virtual, June 2021
Southern Regional Algebra Conference, University of South Alabama, March 2017

Service

University Committees

- Ad hoc Committee to Study Retention of Underrepresented Student Groups, 2022–
- QEP Development Team, 2021–
- Student Success Team, 2021–
- Faculty Senate, 2018–
- Dean of Engineering Search Committee, 2019

Lecture Capture Software Panel, 2018
Orientation Advisory Council, 2018–2020

College Committees
Graduate Curriculum Committee, 2020–
Arts & Science Faculty Senate Caucus Leader, 2020–2022
African American Studies Committee, 2019–2020
Academic Programs and Planning Committee, 2017–2019

Graduate Research Mentoring

Dissertation Chair
Kaitlyn Perry, Ph.D. (Mathematics), 2016

Dissertation Committee
Karen Peterson, Ph.D. (Instructional Design), 2020
Veny Liu, Ph.D. (Mathematics), 2016
Laxmi Chataut, Ph.D. (Mathematics), 2015

Master's Thesis Committee
Ryann Firestine, M.S. (Mathematics), 2023
Addy Herron, M.S. (Mathematics), 2023
Ridley Herron, M.S. (Mathematics), 2023
Juliet Mitchell, M.S. (Mathematics), 2023

Undergraduate Research Mentoring

Honors Thesis Advisor
Rachel Hilarides (co-advisor, Mathematics), 2022.

Honors Thesis Committee
Kaleb Kittrell (Mathematics), 2022.
Parker McGee (Earth Sciences, Biology, and Chemistry), 2021.

Teaching

University of South Alabama
Math 110, Finite Math
Math 112, Precalculus Algebra
Math 126, Calculus II
Math 227, Calculus III
Math 237, Linear Algebra
Math 238, Differential Equations
Math 511, Algebra I
Math 512, Algebra II
Math 592, Graduate Seminar

University of Alabama
Math 112, Precalculus Algebra
Math 125, Calculus I
Math 227, Calculus III
Math 237, Introduction to Linear Algebra
Math 247, Honors Calculus III
Math 470, Principles of Modern Algebra I
Math 471/571, Principles of Modern Algebra II
Math 573, Abstract Algebra I
Math 580, Real Analysis I

Washington University
M1011, Introduction to Statistics
M217, Differential Equations
M233, Calculus III