SHIRA VIEL

Department of Mathematics, Duke University ⋄ 120 Science Drive, Durham NC 27708
shira.viel@duke.edu ⋄ (919) 660-2857 ⋄ https://math.duke.edu/∼viel⋄ ORCID 0000-0003-0613-7596

CURRENT APPOINTMENT

Duke University, Assistant Professor of the Practice of Mathematics   *2018 - present*

EDUCATION

North Carolina State University   *2012 - 2018*
M.S. in Mathematics. Phi Kappa Phi, Graduate minor in Statistics.
Ph.D. in Mathematics. Advisor: Nathan Reading.

Smith College   *2011 - 2012*
Post-Baccalauareate Certificate in Mathematics. Sigma Xi.

Rice University   *2004 - 2009*
B.A. in Mathematics and Theatre. Magna Cum Laude, Phi Beta Kappa.

TEACHING

Duke University, Assistant Professor of the Practice
Math 105L: Laboratory Calculus and Functions I	*Sp 2019, Sp 2020*
Math 111L: Laboratory Calculus I	*Fl 2018-2024, Sp 2022-2024*
Math 202D: Multivariable Calculus for Economics	*Sp 2019-2020, Fl 2019*
Math 242: Discrete Mathematics and Proofs (with Victoria Akin)	*Sp 2024*
Math 771S: Teaching College Mathematics (with Victoria Akin)	*Fl 2021-2022*
Math 773S: Teaching College Mathematics II (with Kristen Gerondelis)	*Fl 2024*
Math 799: MAT Independent Study	*Su 2019, Su 2020*
Clark Scholars Summer Math Course, Pratt School of Engineering	*Su 2023*

North Carolina State University, Graduate Student Instructor
Calculus B (*Sp 2017, Fl 2017*), Foundations of Advanced Math. (*Sp 2016*), Calculus II (*Sp 2015*),
Calculus I (*Fl 2014, Fl 2015*), Financial Math (*Sp 2014*), Precalculus I (*Fl 2013*).

PUBLICATIONS

JOURNAL ARTICLES

10. Tackett, M., **Viel, S.**, & Manturuk, K. (2023). A validation of the short-form classroom community scale for undergraduate mathematics and statistics students. *Journal of University Teaching and Learning Practice* 20(1), 1–17.

9. Spencer, D., Fenn, M., Willis, C., Shen, Y., & **Viel, S.** (2022). Utilizing a Blended + Flipped Learning Approach in a Calculus for Life and Management Sciences Classroom. *PRIMUS.* 33(6), 670-690.

8. Barcelo, H., Bernstein, M., Bockting-Conrad, S., McNicholas, E., Nyman, K., & **Viel, S**. (2020). Algebraic voting theory and representations of $S_m \wr S_n$. *Adv. in Appl. Math.* 120, 102077.

7. Barnard, E., Meehan, E., Reading, N., & **Viel, S** (2018). Universal geometric coefficients for the four-punctured sphere. *Annals of Combinatorics.* 22, no. 1.

6. Gilbert, S., Tymoczko, J., & **Viel, S**. (2016). Generalized splines on arbitrary graphs. *Pacific Journal of Mathematics.* 281, no. 2.

PUBLICATIONS AND CONFERENCE PROCEEDINGS, CONTD.

BOOK CHAPTERS

5. Akin, V. & **Viel, S**. (2023). Equity in Grading Systems: Moving away from "fair" towards transparency and inclusion in coordinated Calculus courses. In Voigt, M., Hagman, J. E., Gehrtz, J., Ratliff, B., & Levy, R. (Eds.) *Justice Through the Lens of Calculus: Framing New Possibilities for Diversity, Equity, and Inclusion* (pp 143-155). MAA Press.

CONFERENCE PROCEEDINGS
(* indicates undergraduate student author)

4. **Viel, S.**, Akin, V., Ellis-Hagman, J., Tremaine, R. Fantin-Hardesty, K., & Kress, N. (2024). Self-reported Student Motivations to Participate in DEI Service Work. [Poster presentation]. To appear in *SIGMAA on RUME Conference Proceedings.*

3. Hunt, S.*, Daily, S.B., **Viel, S.**, & Boyd-Sinkler, K. (2023). Examining the Impact of Introductory Mathematics Courses on Undergraduate Students' Desire to Pursue a STEM Major. In *ASEE Annual Conference and Exposition, Conference Proceedings.*

2. Akin, V., & **Viel, S.** (2019). Interpreting Student Evaluations of Teaching. In Maki D., Bookman J., Jacobson M., Speer N., and Murphy, T. J. *A Conference and Workshop on Preparing Mathematics Graduate Students for Careers in Teaching and Advising Undergraduates.*

PREPRINTS
(* indicates undergraduate student author)

1. Tackett, M., **Viel, S.**, Das, S., Choo, J.* (2024). Classroom Community amid Covid-19: A Mixed-Methods Study of Undergraduate Students in Introductory Mathematics and Statistics. [Accepted]. Preprint available on ArXiv at `https://arxiv.org/abs/2309.11739`.

RESEARCH GRANTS

CURRENT SUPPORT

National Science Foundation ECR: Broadening Participation in STEM. *Acheiving Critical Transformations in Undergraduate Programs in Mathematics (ACT UP Math).* Duke PI with Victoria Akin (Duke PI) and Maria Tackett (Duke PI). Grant PI Wendy Smith, UNL. $237,749 (to Duke). *2022-2025*

PRIOR SUPPORT

Duke Learning Innovation Carry the Innovation Forward. *Building Community and Self-Efficacy Through Inclusive Teaching Practices.* PI with Maria Tackett (PI, Duke). $4,616.   *2021-2023*

PRESENTATIONS AND PANELS

Intl. Conference on Learning, Utrecht University   *Su 2024*
Contributed poster, Classroom Community in Intro Math & Stats. (with Maria Tackett).

Workshop on Crit. Approaches to Equity-focused Dptl. Transf., MAA Open Math   *Su 2024*
Invited panelist, Learning from Other Depts. Engaged in Critical Transformation Efforts.

Conf. on Research in Undergrad. Math. Education, U. Nebraska Lincoln   *Sp 2024*
Contributed poster, Self-reported Student Motivations to Participate in DEI Service Work.

Graduate Research Opportunities Workshop, Duke University   *Fl 2023*
Invited panelist, Life with a PhD.

Inclusive Assessment in Quantitative Courses, Duke Learning Innovation   *Fl 2022*
Invited panelist.

PRESENTATIONS AND PANELS, CONTD.

Electronic Conference on Teaching Statistics   *Su 2022*
  Contributed talk, Students' Sense of Community in Intro. Math & Stats. (with Maria Tackett).

Pandemic Pedagogy Research Symposium   *Su 2022*
  Contributed talk, Students' Sense of Community in Intro. Math & Stats. (with Maria Tackett).

Math Invitational for Girls   *Sp 2022*
  Invited talk, My Path in Math + Some Triangulations.

FEMMES+ Capstone, Duke Females+Allies Excelling in Math, Eng., Sci.   *Sp 2022*
  Keynote address, My Path in Math.

Teaching IDEAS, Duke Graduate School & Duke Learning Innovation   *Fl 2021*
  Invited panelist, Carrying the Innovation Forward to Teach Diverse Learners.

Workshop on SoTL, Duke Learning Innovation and DKU Teaching & Learning   *Fl 2020*
  Invited panelist, How and Why to Research your Teaching Practice.

FEMMES+ Hacks, Duke Females+Allies Excelling in Math, Eng., Sci.   *Fl 2020*
  Invited panelist, Women in STEM.

Mid-Atlantic RUME Conference, James Madison University   *Fl 2019*
  Contributed talk, Proposed Investigation of Non-points-based Grading in Calculus (with Victoria Akin).

SPIRE Lunch and Learn, Duke SPIRE   *Fl 2019*
  Invited talk, Voting Theory, Fold-and-Cut, & Scissor Congruence (with Victoria Akin).

Joint PtC/SEMINAL Conference, University of Nebraska, Lincoln   *Su 2019*
  Invited talk, From Project CALC to Today: 30 Years of Calculus at Duke (with Victoria Akin).

Workshop on Inclusive Teaching, U. N. Carolina, CH Chapter of AMS   *Sp 2019*
  Invited panelist, Inclusive Teaching in Undergraduate Mathematics.

Sonia Kovalevsky Day, N. Carolina State U. Chapter of AWM   *Sp 2019*
  Keynote address, No Fair: Games of Chance and Expected Value.

Math Grad Student Training Series, N. Carolina State U. Dept. of Math.   *Fl 2018*
  Invited panelist, Preparing for Interviews & Conference Attendance.

AMS Special Session on Combinatorics and Geometry, JMM, San Diego, CA   *Sp 2018*
  Invited talk, Surfaces, orbifolds, and dominance

AWM Graduate Student Poster Session, JMM, San Diego, CA   *Sp 2018*
  Contributed poster, Algebraic voting theory and representations of $S_m \wr S_n$

University of Minnesota Combinatorics Seminar   *Fl 2017*
  Invited talk, Folding and dominance: relationships among mutation fans for surfaces and orbifolds

NCSU Algebra and Combinatorics Seminar   *Fl 2017*
  Invited talk, Folding and dominance: relationships among mutation fans for surfaces and orbifolds

DePaul University Algebra and Combinatorics Seminar   *Fl 2017*
  Invited talk, Folding and dominance: relationships among mutation fans for surfaces and orbifolds

Graduate Student Combinatorics Conference, University of Kansas   *Sp 2017*
  Contributed talk, Surfaces, orbifolds, and dominance.

Intl. Conf. on Formal Power Series and Algebraic Combinatorics, Daejon, Korea   *Su 2015*
  Contributed talk, Universal geometric coefficients for the four-punctured sphere (with Emily Meehan).

Hudson River Undergraduate Mathematics Conference, W. New England Univ.   *Sp 2012*
  Contributed talk, Generalized splines (with S. Gilbert and T. Pilaroscia)

Special Session on Undergrad. and Postbac. Research, JMM, Boston, MA   *Sp 2012*
  Contributed talk, Rainbow domination number of a graph (with M. Harris, K. Martin, & J. Woods).

COURSE COORDINATION

Duke University, Assistant Professor of the Practice

Term	Course	# Students	#Lec	#Lab/Dis	#FacInstr	#GradInstr	#GradTAs	#UTAs
Fl 2024	111L	300 exp.	2	11	1	0	11	11
Sp 2024	111L	144	2	5	1	0	2	10
Fl 2023	111L	305	2	11	1	0	9	16
Sp 2023	111L	160	2	5	1	0	3	9
Fl 2022	111L	284	5	10	1	4	9	12
Sp 2022	111L	141	4	5	2	0	2	10
Fl 2021	111L	267	2	10	1	0	21	3
Fl 2020	111L	222	1	8	2	7	0	8
Sp 2020	202D	104	1	4	1	4	0	0
Fl 2019	202D	135	1	4	1	3	0	0
Fl 2019	111L	233	9	9	1	8	2	15
Sp 2019	202D	100	1	4	1	3	0	0
Fl 2018	111L	284	9	9	1	7	0	16

FELLOWSHIPS AND HONORS

Duke University

Inclusive Assessment Faculty Learning Community Fellowship, Learning Innovation	*2021-2022*
Transformative Learning Intellectual Community Fellowship, Learning Innovation	*2021-2022*
Top 10 Faculty FLUNCHed, Office of Undergraduate Education	*Spring 2021*
Teaching for Equity Fellowship, Human Rights Center	*2020 - 2021*
Active Learning Fellowship, Learning Innovation	*2019*

Travel Grants

Graduate student support for JMM Attendance, Am. Math. Society	*Sp 2018*
Summer Research support for Women in Mathematics, Math. Sci. Research Inst.	*Su 2017*

North Carolina State University

Dissertation Completion Fellowship, Graduate School	*2018*
Maltbie Award for Excellence in Teaching, Department of Mathematics	*2016*
Preparing the Professoriate Fellowship, Graduate School	*2016 - 2017*
Thank-a-Teacher Award, Office of Faculty Development	*2014, 2016*
Outstanding Teaching Assistant Award, Graduate Student Association	*2014*
STEM Fellowship, Department of Mathematics	*2012 - 2013*
University Fellowship, Department of Mathematics	*2012 - 2013*

Rice University

Head Academic Fellow, Lovett College	*2008-2009*
Trustee Distinguished Scholarship	*2005 - 2009*
Dunlevie Summer Writing Fellowship, School of Humanities	*2006*

SELECTED SERVICE

To the Profession and the Community

Duke Math Circles Organizer, Duke University	*2020 - Present*
AP Precalculus Visiting Fellow, College Board	*2023*
GROW (Graduate Research Opportunities Workshop) Lead Organizer, Duke University	*2022 - 2023*
Frontiers for Young Minds Science Mentor, Frontiers	*Sp 2022*
CoMInDS (College Math. Instructor Dev. Source) Teaching Seminar Facilitator, MAA	*Su 2021*
FURM (Foundations for Undergraduate Research in Mathematics) Reviewer	*Sp 2021*
Math Alliance Mentor, National Alliance for Doctoral Studies in Math. Sci.	*2020 - present*

SELECTED SERVICE, CONTD.

FEMMES+ Capstone Activity Leader, "Rational Tangles," Duke FEMMES+	*Sp 2020, Sp 2022*
Math Doesn't Bug Me Activity Leader, Bugfest, NC Museum of Nat. Sci.	*2012 - 2018*
Sonia Kovalevsky Day Activity Leader, N. Carolina State U. Chapter of AWM	*2012 - 2018*
Southeastern Conf. for Undergrad. Women in Math Panelist, Duke University	*Fl 2015*
Math Circle in the Triangle Instructor, N. Carolina State University	*2013 - 2015*
Campus School Math Enrichment Instructor, Smith College, Northampton MA	*2011 - 2012*
Space City Math Circle Instructor, Reasoning Mind, Houston TX	*2009 - 2011*

To Duke University

ORCID Scholars Faculty Advisor, iiD	*2023 - present*
ASCEND Summer Program Guest Speaker, LIFE: Lower Income, First Generation Engagement	*2023 - present*
Program II Committee Member, Arts & Sciences Council	*2021 - present*
SPIRE Mentor, STEM Pathways for Inclusion, Readiness, and Excellence	*2020 - present*
College Advisor, Academic Advising Center	*2019 - present*
NQS DAE Hiring Committee Member, Academic Advising Center	*2023*
Student Success Advisory Committee Member, Office of Undergrad Education	*2022 - 2023*
ASA DataFest Judge, Department of Statistics	*2020*
Teaching Quant. Sci. Journal Club Co-organizer, Learning Innovation	*2019 - 2020*

To Duke University Department of Mathematics

Diversity, Equity, and Inclusion Team Member	*2021 - present*
AWM Mentor	*2020 - present*
Training Week Workshop Co-leader	*2019 - present*
Teaching Committee Member	*2018 - present*
105L/106L Subcommittee Member	*2024*
Major Advisor	*2020 - 2023*
Calculus Textbook Subcommittee Chair	*2021 - 2022*
Midterm Student Survey Co-author and Administrator	*2018 - 2022*
Training Coordinator Hiring Committee Member	*2021*
Lab Calculus Help Room Co-manager	*2019 - 2021*
Postdoc Workshop on Making Midterm Teaching Improvements Co-leader	*Sp 2020*
Liaison to Office of Assessment, Trinity College of Arts & Sciences	*2019-2020*
Liaison to EUTL, Trinity College of Arts & Sciences	*2019*

To North Carolina State University

Math Grad Instructor Support & Tools Founding Committee Member, Math Department	*2014 - 2018*
University Grad TA Training Panelist, Graduate School	2017
SUM Series Undergrad Math Seminar Assistant, Math Department	*2013 - 2017*
Math Undergrads Under Grads Mentor, Math Department	*2016 - 2017*
Math Grad TA Training Panelist and Assistant, Math Department	*2015 - 2016*
Math Grad Student Association President, Math Department	*2014 - 2015*
Engineering Calculus I-III Textbook Editor, Math Department	*2014 - 2015*

SELECTED PROFESSIONAL DEVELOPMENT

National and international workshops (application-based)

PEER-Chicago Workshop on Discipline Based Education Research	*Sp and Su 2021*
CoMInDS Workshop on Improving Prep. of Grad. Students to Teach	*Su 2020*
Mastery Grading Workshop and Conference	*Su 2020*

SELECTED PROFESSIONAL DEVELOPMENT, CONTD.

National and international workshops (application-based), contd.

Alg. and Geom. Combinatorics of Reflection Groups Workshop, LaCIM UQ Montral	*Su 2017*
Algebraic CombinatoriXX 2 Workshop, BIRS	*Su 2017*

Duke University

Sexual Orientation and Gender Identity Training	*Sp 2024*
Bystander to Upstander Training	*Fl 2022*
Implicit Bias Training	*Fl 2019*

RELATED PROFESSIONAL EXPERIENCE

Subject Matter Expert, Stembrite & Pearson Education   *2017 - 2018*
Prepared and delivered lightboard video lessons of precalculus and trigonometry content and examples to accompany digital release of "College Algebra" textbook by Lial, Hornsby, and Schneider.

Senior Professional Development Specialist, Reasoning Mind   *2010 - 2011*
Created and led mathematics and software training workshops for elementary and middle school teachers with state-standard-specific modifications for 5 states, and volunteered as director of weekly math circles in both Houston and Beaumont, TX.

Program Coordinator, Reasoning Mind   *2009 - 2010*
Provided ongoing support for curriculum implementation at classroom and administrative levels in elementary and middle schools across the Houston Independent School District.

Summer Associate, Boston Consulting Group   *2008*
Conducted independent research of current periodicals and industry releases in the natural gas and telecom industries. Built and maintained Excel-based models for client executive board presentations.

MEMBERSHIPS

Mathematical Association of America (MAA), Special Interest Group on Research in Undergraduate Mathematics Education (SIGMAA on RUME), Association for Women in Mathematics (AWM)