

Bryan Oakley

CONTACT INFORMATION	University of Wisconsin-Madison Department of Mathematics 480 Lincoln Dr. Madison, WI 53706 USA	boakley@wisc.edu
RESEARCH INTERESTS	Fluid dynamics, especially mixing. Upper and lower bounds on the rate of mixing, optimal mixing, mixing efficiencies, mix-norms, and mixing applications. Considering the advection-diffusion equation of a passive scalar as a first step towards the study of turbulence. Bridging the connection between Dynamical Systems and Fluid Dynamics through the use of Fourier Analysis.	
EDUCATION	University of Wisconsin-Madison Ph.D. Candidate, Mathematics (expected May 2022) <ul style="list-style-type: none">• Dissertation Topic: Mixing Rates• Advisor: Prof. Jean-Luc Thiffeault M.S. in Mathematics, May 2018 University of Georgia B.S. in Mathematics, May 2015 <ul style="list-style-type: none">• Highest honors• 3.95 overall GPA and 3.98 major GPA	
PAPERS	B. Oakley, J.-L. Thiffeault, and C. R. Doering, <i>On Mix-norms and the Rate of Decay of Correlations</i> , to appear in <i>Nonlinearity</i> (2021). https://arxiv.org/abs/2002.09953 .	
CONFERENCE TALKS	<i>Mixing and transport in the presence of a source</i> , Division of Fluid Dynamics 2020, Chicago. (Nov 2020)	
OTHER TALKS	<i>Homogenization of the advection-diffusion equation in the presence of a source</i> , Physical Applied Math seminar, UW-Madison. (Oct 2020) <i>Generalized Lyapunov Exponents for Products of Random Matrices</i> , Physical Applied Math seminar, UW-Madison. (Nov 2019) <i>Riffle Shuffles and Mixing</i> , Physical Applied Math seminar, UW-Madison. (Feb 2019) <i>Mixing Rates</i> , AMS Student Chapter Seminar invited talk, UW-Madison. (Oct 2018) <i>On the Rate of Decay of Mix-Norms and Rate of Decay of Correlations</i> , Specialty exam talk, UW-Madison. (Aug 2018) <i>Maximal Mixing by Incompressible Fluid Flows</i> , Physical Applied Math seminar, UW-Madison. (Oct 2017)	

TEACHING
EXPERIENCE

Spring	2021	Instructor	Math 112: College Algebra - Created and presented lecture material - Created exams and homework with autonomy - A WisCEL program with technology-based learning
Fall	2020	Instructor	Math 96: Preparatory Algebra - Created and presented lecture material - A WisCEL program with technology-based learning
Summer	2020	Teaching Asst.	Math 240: Intro to Discrete Mathematics - Host discussion section with autonomy
Spring	2020	Teaching Asst.	Math 112: Algebra - A WisCEL program with technology-based learning
Fall	2019	Instructor	Math 131: Math for Teaching: Geom. and Meas. - Created and presented lecture material - Created exams and homework with autonomy
Spring	2019	Instructor	Math 130: Math for Teaching: Nums. and Ops. - Created and presented lecture material - Created exams and homework with autonomy
Fall	2018	TA Coord.	Math 234: Calc.– Functions of Several Variables - Created and coordinated discussion material for multiple sections of the course
Spring	2018	Teaching Asst.	Math 221: Calc. and Analytic Geometry 1
Fall	2017	Teaching Asst.	Math 211: Calc. for Business Majors
Spring	2017	Teaching Asst.	Math 217: Calc. with Algebra and Trig. 2
Fall	2016	Teaching Asst.	Math 221: Calc. and Analytic Geometry 1
Fall	2015	Teaching Asst.	Math 221: Calc. and Analytic Geometry 1

AWARDS AND
SUPPORT

2019	Mid-Career TA award from Math Dept.
2016	RTG: Analysis and Applications, NSF grant DMS-1147523. Research Assistant for Spring and Summer terms.

GRADUATE
COURSEWORK

<input type="checkbox"/> Uncertainty Quantification, Data Assimilation and Prediction of Complex Nonlinear Turbulent Dynamical Systems	<input type="checkbox"/> Harmonic Analysis
<input type="checkbox"/> Stochastic Processes	<input type="checkbox"/> Fourier Analysis
<input type="checkbox"/> Systems of (Stochastic) PDE	<input type="checkbox"/> Complex Analysis
<input type="checkbox"/> Computational Math	<input type="checkbox"/> Real Analysis
<input type="checkbox"/> Mathematical Fluid Dynamics	<input type="checkbox"/> Algebra
<input type="checkbox"/> Applied Math	<input type="checkbox"/> Algebraic Topology
<input type="checkbox"/> Probability	<input type="checkbox"/> Differential Geometry
<input type="checkbox"/> Partial Differential Equations	<input type="checkbox"/> Differential Topology
	<input type="checkbox"/> Combinatorics