Contact Information	Mathematics Program Centre College 600 West Walnut Street Danville, KY 40422	Phone: (859) 238-5916 Email: joel.kilty@centre.edu
Education	University of Kentucky Ph.D., Mathematics, August 2009 Advisor: Dr. Zhongwei Shen Thesis Title: L ^p Boundary Value P	roblems on Lipschitz Domains
	M.A., Mathematics, May 2006	
	Asbury College, B.A. in Mathematics, M	/Iagna Cum Laude, May 2004
Professional Experience		e of Mathematics, September 2021-Present ofessor of Mathematics, September 2017-August 2020 gust 2009-August 2015 er Games, & Gambling cs ith Review g and Applied Calculus of Economics nalysis Directed Study) independent Study) Equations
Books		

Modern Calculus, with Alex M. McAllister. In preparation.

Software Packages	 MMAC – RStudio Package, Published July 2018 RStudio package developed to support the book Mathematical Modeling and Applied Calculus (Oxford University Press). Available for download from http://cran.r-project.org
Publications	 Collaboratively Re-envisioning Calculus for the Modern Student, with Alex M. McAllister and Alison Marr, in Justice through the lens of calculus: Framing new possibilities for diversity, equity, and inclusion. Mathematical Association of America Notes, published electronically November 2021, 257-263. Abstract submitted February 2020, accepted March 2020. Article submitted June 2020, revised December 2020. A Modeling Based Approach to Calculus (with Alex M. McAllister), PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies, Volume 30, Issue 3, 316-334, February 2020. The L^p Regularity Problem for the Stokes System on Lipschitz Domains (with Jun Geng), J. Differential Equations 259 (2015), 1275-1296. A bilinear estimate for biharmonic functions on Lipschitz Domains (with Zhongwei Shen), Math. Ann. 349 (2011), no. 2, 367-394. The L^p Regularity Problem on Lispchitz Domains (with Zhongwei Shen), Trans. Am. Math. Soc. 363 (2011), no. 3, 1241-1264. The L^p Dirichlet problem for the Stokes system on Lipschitz domains, Indiana Univ. Math. J. 58 (2009), no. 3, 1211-1226.
Other Manuscripts	 A Guiding and Informing Tale for Re-envisioning STEM Courses, with Alison Marr and Alex M. McAllister, expository, January 2019, 14 pages. Mentor Manual for Cohort Meetings, with Alison Marr and Alex M. McAllister, expository, August 2018, 45 pages
Grants	 CTL Course Development Grant Course to be Developed: MAT 185 – Modern Calculus II Award amount \$1500, Summer 2019 Co-written with Michael Lamar, Alex M. McAllister, and Prayat Poudel ACS Diversity and Inclusion Grant Project: Supporting Diversity and Inclusion in Mathematics and STEM Disciplines Role: Principal Investigator Award Amount: \$24,450 + \$2,000 planning grant Awarded: December 2017; Grant Period: 2018 Cowritten with Alex M. McAllister and Alison Marr (Southwestern University) Centre College FDC Faculty Research Grants († indicates student collaboration) Summer 2021: More Mathematical Writing on Modern Calculus Summer 2020: Mathematical Writing on Modern Calculus Summer 2017: Writing on Math Modeling and Applied Calculus Summer 2015: Mathematical Writing on Mathematical Modeling & Applied Calculus[†] Summer 2015: Mathematical Writing on Mathematical Modeling & Applied Calculus Summer 2014: Mathematical Writing on Mathematical Modeling & Applied Calculus Summer 2013: Boundary Value Problems for the Polyharmonic Equation Summer 2012: Solvability of Laplace's Equation on a Special Class of Lipschitz Domains[†] Summer 2010: Duality between L^p Dirichlet and regularity problems for the Stokes system

	CTL Teaching with Technology Mini Grant Project: Deepening the Discussion – A Video Series for MAT 145 Award Amount \$600, Spring 2016 Cowritten with Alex M. McAllister
	CTL Course Development Funding Course to be developed: MAT 145 – Applied Calculus and Mathematical Modeling Award Amount \$1,500, Spring 2013 Cowritten with Alex M. McAllister
	Academy for Inquiry-Based Learning Small Grants Program Education Advancement Foundation Award Amount: \$10,000 Cowritten with Jeffrey Heath, Received October 2009
Honors & Awards	Maragaret V. Haggin Associate Professor of Mathematics September 1, 2021 - Present
	Elizabeth Molloy Dowling Associate Professor of Mathematics September 1, 2017- August 31, 2020
	Sabbatical Leave for Spring 2018 (3 course release) Project: L^p Boundary Value Problems for Elliptic Systems on Lipschitz Domains
	Honor Walk Talent Recipient – 2013, 2017
	Centre College Stodghill Research Professorship for AY 2014-2015 Project: L^p Boundary Value Problems for Elliptic Systems on Lipschitz Domains
	Project NExT (New Experiences in Teaching) Fellow, 2010-2011
	Wimberly C. Royster Outstanding Teaching Assistant Award University of Kentucky, Department of Mathematics, AY 2007-2008
	Kentucky Opportunity Fellowship University of Kentucky, AY 2007-2008
	Max Steckler Fellowship University of Kentucky, AY's 2006-2007, 2008-2009
Conference & Seminar Talks	Promoting Diversity, Equity, and Inclusion through Redesigning Calculus with Alex M. McAllister Teaching & Learning Seminar, Department of Mathematics, University of Kentucky, February 2022
	Redesigning Calculus - Incorporating Technology to Increase Accessibility & Persistence in STEM with Alex M. McAllister & Prayat Poudel Joint Mathematics Meetings, Seattle, WA, January 2022. Postponed to virtual in April 2022.

DEI Problems in Mathematics and Some Possible Responses with Alex M. McAllister & Prayat Poudel MAA Mathfest, virtual conference, August 2021

A Re-envisioning of the Calculus Sequence for the Modern Student with Alison Marr, Alex M. McAllister, & John Ross Joint Mathematics Meetings, Denver, CO, January 2020

Calculus: Origins, Reforms, and New Directions with Robin Cruz, Thomas Halverson, Alison Marr, Alex M. McAllister, & Chad Topaz Joint Mathematics Meetings, Denver, CO, January 2020

Beyond Leaky Pipes: Fostering Pathways and Persistence in the Mathematical Sciences with Ranthony Edmonds, Alison Marr & Alex M. McAllister MAA Mathfest, Cincinnati, OH, August 2019

Mathematical Modeling and Applied Calculus with Alex M. McAllister MAA Mathfest, Cincinnati, OH, August 2019

Enabling Student Persistence and Success in the Calculus Sequence with Alex M. McAllister KYMAA Annual Meeting, Danville, KY, April 2019

Developing Computing Skills in Calculus Courses with Alex M. McAllister and Alison Marr Joint Mathematics Meetings, Baltimore, MD, January 2019

Enabling Student Persistence and Success in the Calculus Sequence with Alex M. McAllister and Alison Marr, Joint Mathematics Meetings, Baltimore, MD, January 2019

Envisioning a New Calculus Sequence with Alex M. McAllister & Alison Marr AAC&U Transforming STEM Higher Education Conference, Atlanta, GA, November 2018

Math. Modeling & Applied Calculus: An Integrated Approach for Less-Prepared Students with Alex M. McAllister, Joint Mathematics Meetings, Atlanta, GA, January 2017

Mathematical Modeling and Applied Calculus with Alex M. McAllister KYMAA Annual Meeting, Northern Kentucky University, March 2016

Mathematical Modeling and Applied Calculus with Alex M. McAllister Joint Mathematics Meetings, Seattle, WA, January 2016

Blending Mathematical Modeling and Calculus: A Data-Driven Approach to Calculus Joint Mathematics Meetings, San Antonio, TX, January 2015

 $W^{1,p}$ estimates for the Stokes system on Lipschitz domains AMS Fall Southeastern Sectional Meeting, University of Louisville, October 2013

The L^p regularity problem for the Stokes system on Lipschitz domains Joint Mathematics Meetings, San Diego, CA, January 2013

Duality of the L^p Dirichlet and regularity problems for elliptic systems on Lipschitz domains Midwest PDE Seminar, University of Illinois, Urbana-Champaign, March 2011

	Boundary value problems for partial differential equations University of North Carolina, Asheville, October 2010
	Boundary value problems for partial differential equations Centre College, October 2010
	The L^p regularity problem for the biharmonic equation on Lipschitz domains AMS Spring Southeastern Sectional Meeting, University of Kentucky, March 2010
	Duality between the Dirichlet and regularity problems for second order elliptic systems Recent Advances in Harmonic Analysis and PDE, University of Virginia, May 2009
	Duality between the Dirichlet and regularity problems for second order elliptic systems Prairie Analysis Seminar, University of Kansas, November 2008
	The L^p regularity and Dirichlet problems for second order elliptic systems PDE/Analysis Seminar, University of Kentucky, September 2008
	The L^p Dirichlet problem for the Stokes system on Lipschitz domains PDE/Analysis Seminar, University of Kentucky, April 2008
	The L^p Dirichlet problem for the Stokes system on Lipschitz domains AMS Sectional Meeting, Louisiana State University, March 2008
Panels	Leveraging Technology for Engaged Teaching and Learning CTL Pedagogy Lunch, April 18, 2017
	A Career as a Mathematics Professor, Spencer County High School, October 2015
	So, you think you want to go to Graduate School? Career Services, Centre College. Fall 2011 & Fall 2012
Conference Sessions & Workshops Organized	Engaging Students Through Modeling Hands-on Projects and Innovative Exploratory Approaches. Invited Paper Session, Joint Mathematics Meeting, January 2022. Postponed to virtual in April 2022. Co-organized with Rachel Grotheer, Alison M. Marr, Alex M. McAllister, and Stephen M. Walk
	Promoting Diversity, Equity, Inclusion, and Social Justice Contribution Paper Session, MAA Mathfest, virtual conference, August 2021 Co-organized with Robin Cruz, Alex M. McAllister, and Prayat Poudel
	More than Math: Resilience, Growth Mindset, and Transferable Skills Contributed Paper Session, Mathfest, Philadelphia, PA, August 2020 Co-organized with Sean Droms, Sara Malec, Alex M. McAllister, and Prayat Poudel Conference Cancelled.
	Diversity, Equity, and Inclusion in Mathematics (Contributed Paper Session) Mathfest, Philadelphia, PA, August 2020 Co-organized with Annalisa Crannell, Robin Cruz, Ranthony A.C. Edmonds, Alex M. McAllister, and Chad Topaz. Conference Cancelled.

Backwards Coure (Re)Design

CTL Faculty Workshop. Centre College. Co-organized with Alex M. McAllister February 2020

Re-envisioning the Calculus Sequence (Contributed Paper Session) Joint Mathematics Meetings, Denver, CO, January 2020 Co-organized with Robin Cruz, Tom Halverson, Alison Marr, Alex M. McAllister and Chad Topaz

Diversity, Equity, and Inclusion in Mathematics (Contributed Paper Session) Mathfest, Cincinnati, OH, August 2019 Co-organized with Alex M. McAllister, Alison Marr, and Ranthony Edmonds

Re-envisioning the Calculus Sequence Workshop Centre College, Danville, KY June 26-27, 2018 Co-organized with Alex M. McAllister and Alison Marr (Southwestern University)

MAA Session on Flipped Classes: Implementation and Evaluation Joint Mathematics Meetings, San Diego, CA, January 2018 Co-organized with Alex M. McAllister and John H. Wilson

MAA Minicourse: (Re)Designing Your Own Course Joint Mathematics Meetings, Atlanta, GA, January 2017 Co-developed and taught with Alex M. McAllister

MAA Session on Mathematical Technology in the Calculus Classroom Joint Mathematics Meetings, Atlanta, GA, January 2017 Co-organized with Alex M. McAllister

MAA Session on Innovative Approaches to One-Semester Calculus Courses Joint Mathematics Meetings, Seattle, WA, January 2016 Co-organized with Alex McAllister

The Project NExT Colloquium at The Joint Mathematics Meetings New Orleans, January 2011 Coordinated the planning of the blue10 Fellows' Sessions Co-coordinated with Elizabeth Thoren (UC, Santa Barbara)

Inquiry-Based Learning in Mathematics Workshop Centre College, Danville, KY, July 15, 2010 Co-organized with Jeffrey Heath Funded by the Academy of Inquiry-Based Learning Small Grants Program

Special Session on Function Theory, Harmonic Analysis, and Partial Differential Equations AMS Sectional Meeting, Lexington, KY, March 2010 Co-organized with Katherine Ott and Irina Mitrea

Research	Joint Mathematics Meetings, Seattle, WA, January 2022. Postponed to virtual in April 2022.
Conferences	Joint Mathematics Meetings, Denver, CO, January 2020
Attended	Joint Mathematics Meetings, Baltimore, MD, January 2019
	Joint Mathematics Meetings, San Diego, CA, January 2018

	Joint Mathematics Meetings, Atlanta, GA, January 2017 Joint Mathematics Meetings, Seattle, WA, January 2016 Joint Mathematics Meetings, San Antonio, TX, January 2015 Joint Mathematics Meetings, Baltimore, MD, January 2014 AMS Sectional Meeting, University of Louisville, October 2013 Joint Mathematics Meetings, San Diego, CA, January 2013 Joint Mathematics Meetings, Boston, MA, January 2012 Midwest PDE Seminar, University of Illinois, Urbana Champaign, March 2011 Joint Mathematics Meetings, New Orleans, LA, January 2011 AMS Sectional Meeting, University of Kentucky, March 2010 Recent Advances in Harmonic Analysis and PDE, University of Virginia, May 2009 The 4th Symposium on Analysis and PDE, Purdue University, May 2009 Joint Mathematics Meeting, Washington, D.C., January 2009 Prairie Analysis Seminar, University of Kansas, November 2008 AMS Sectional Meeting, Louisiana State University, March 2008 Midwest Partial Differential Equations Seminar, University of Kentucky, March 2008
Other Conferences & Workshops Attended	 MAA Mathfest 2021, virtual conference, August 2021 2021 Spring Meeting of the KYMAA, virtual conference, March 2021 MAA Mathfest 2019, Cincinnati, OH, August 2019 AAC&U FKAL STEM Leadership Institute, July 2019 2019 Spring Meeting of the KYMAA, Centre College, March 2019 AAC&U Transforming STEM Higher Education, Atlanta, GA, November 2018 2017 Spring Meeting of the KYMAA, Berea College, March 2017 Bluegrass Higher Education Consortium's Academic Leadership Academy, Spring 2016 2016 Spring Meeting of the KYMAA, Northern Kentucky University, April 2016 2015 Spring Meeting of the KYMAA, Morehead State University, March 2015 4th Annual Bluegrass Undergraduate Mathematics Symposium, October 2014, Attended CIC/Walmart Foundation Symposium on First-Generation College Students, July 2014 3rd Annual Bluegrass Undergraduate Mathematics Symposium, September 2013, Attended Modeling: Early and Often in Undergraduate Calculus, MAA PREP Workshop, July 2013 2013 Spring Meeting of the KYMAA, Transylvania University, March 2013 Functions, Parameters, and Fitting for Teaching Calculus Workshop, January 2013 2nd Annual Bluegrass Undergraduate Mathematics Symposium, September 2012, Attended 2012 Spring Meeting of the KYMAA, Bellarmine University, March 2012 Ist Annual Bluegrass Undergraduate Mathematics Symposium, September 2011, Attended 14th Annual Legacy of R.L. Moore Conference, Washington, D.C., June 2011 The Project NExT: New Jobs, New Responsibilities, New Ideas, Pittsburgh, PA, August 2010 Project NExT: New Jobs, New Responsibilities, New Ideas, Pittsburgh, PA, August 2010 Inquiry-Based Learning in Mathematics Workshop, Centre College, July 2010 13th Annual Legacy of R.L. Moore Conference, Austin, TX, July 2009 12th Annual Legacy of R.L. Moore Conference, Austin, TX, July 2009
Student Engagement Activities	Spring 2021, 3 Hr Independent Study with Daniel McAllister Course Title: Lebesque Integration Fall 2016-Spring 2021: Mentor for Brown Fellow Classes of 2020 and 2021

	January 2017: Faculty Supervisor for Mary Allen's Academic Internship Agricultural Internship in Hawaii
	Spring 2016: Centre-of-Attention Day – Dynamic Population Dynamics
	Fall 2015: Faculty Supervisor for Sam Aguiar's Academic Internship Athletic Administrator Internship
	Summer 2015: Matthew O'Brien, Abby Quirk-Royal, Melissa Stravitz, William Thackery FDC Collaborative Research Project: <i>Mathematical Writing on Mathematical Modeling</i>
	Summer 2014: Adrienne Kinney, Anne Wilson, and Monica Fitch FDC Collaborative Research Project: <i>Mathematical Writing on Mathematical Modeling</i>
	CentreTerm 2013: Faculty Supervisor for Amber Martin's Academic Internship Exploration and Application in Secondary Mathematics Education
	Summer 2012: Molly Howell FDC Collaborative Research Project: Laplace's Equation on the Perturbed Upper Half Plane
	Summer 2011: Faculty Supervisor for Cameron Fishman's Academic Internship Research and Marketing in Life Insurance & Financial Planning
	Spring 2011: 3 Hr Directed Study with Dannyielle Blanchard Course Title: MAT 400, Differential Geometry
Other Scholarly Endeavours	Backwards Course Design with Alex M. McAllister, CTL Faculty Workshop, Feb. 2020 Science and Math Inclusive Classroom, Faculty Learning Circle, Centre College, AY 2019-20 Backwards Course Design with Alex M. McAllister, Summer Faculty Workshop, August 2019 Book proposal reviewer for Oxford University Press, 2018, 2020 Scholarship of Teaching and Learning FLC, 2017-2018 (occasional participant) Using the Playback Screencast Creator to Create Supplemental Instructional Videos, Spring 2017 Faculty Learning Community – Effective Learning Strategies for Students with ASD (2013-14) Faculty Learning Community – Teaching as Storytelling (2014) Study on The effect of mathematical modeling on quantitative literacy with Alex M. McAllister
Service to Centre	 Elected Committee Chair Committee on Curriculum and Academic Standards, Fall 2019-Spring 2020 Appointed Committee Chair Mathematics Program Chair, Fall 2020 - Present Enrollment Management Committee, Fall 2012 - Fall 2014 First-Year Book Committee, Fall 2012 - Spring 2014

Elected Committee Member

Committee on Curriculum and Academic Standards, Fall 2018-Spring 2020 Faculty Steering Committee, Fall 2019 - Spring 2020 (CCAS Chair) Committee on Tenure and Reappointment, Fall 2016 - Spring 2018 Faculty Steering Committee, Division III Rep., Fall 2013 - Spring 2016, Spring 2019 College Council, At-Large Member, Fall 2011 - Spring 2014

Appointed Committee Member

First-Year Book Committee, Fall 2010 - Spring 2018
CTL Advisory Board, Fall 2015 - Spring 2017
CCPD Advisory Committee, Fall 2012-Spring 2014, Winter 2016-Spring 2017
Athletics & Recreation Committee, Fall 2015-Spring 2016
Grissom Scholars Advisory Committee, Fall 2014 - Spring 2015
Academic Internship Working Group (JGB Foundation Grant), Spring 2014
College Council Steering Committee, Fall 2013 - Fall 2015
Enrollment Management Committee, Fall 2010 - Fall 2014
Lab Safety Committee, Fall 2014-Spring 2015

Academic Program Committee

Mathematics, Fall 2009 - Present

Search Committees

Mathematics Faculty – 1 yr visiting (hired Timothy McEldowney), Spring 2021 Mathematics Faculty – Mellon Tenure Track (hired Prayat Poudel), Spring 2017 Mathematics Faculty – 3 yr visiting (hired Zhexiu Tu), Spring 2017 Mathematics Faculty – Tenure Track (hired Michael Lamar), Fall 2015 - Spring 2016 Mathematics Faculty – 1 yr visiting (hired Charlie Suer), Spring 2015 Chemistry Faculty – Tenure Track (hired Lenny Demoranville), Fall 2013 Director of Financial Aid Search Committee (hired Kevin Lamb), Summer 2013 Biology Faculty – 1yr visiting (hired Scott Shreve), Fall 2012 - Spring 2013 Mathematics Faculty – 3 yr visiting (hired Ellen Swanson), Fall 2011 - Spring 2012

Other Service to Centre

Brown Fellow Mentor, Fall 2016 - Spring 2021 Grissom Scholar Selection, Spring 2015, 2016, 2017 Faculty Liaison to Men's Lacrosse, Fall 2012 - Spring 2014 Faculty Mentor to Lenny Demoranville, Fall 2012 - Spring 2013 Faculty Sponsor for the Cycling Club, Fall 2010 - Spring 2012

Advising

Major Advisor for the following students:

- Class of 2012: Cameron Fishman, Grant Hinton, Will Keyer, Brian Saulino
- Class of 2013: Elizabeth Donelan, Lauren Foley, Amber Martin, Kelli Schierloh

Class of 2014: Clayton Brown, Elizabeth Miller, Chris Phillips

- Class of 2015: Jami Brunner, Tristan Conroy, Luke Hinshelwood
- Class of 2016: Emma Schreiner, Sam Spees, Haofei Zou
- Class of 2017: Shelby Adams, Hannah Banks, Ian Black, Adrienne Kinney
- Class of 2018: Austin Lotspeich, Nathan Riggs
- Class of 2019: Prashant Chakradhar, Aurthur Johnson, Jacob Roth, Yifan Ye
- Class of 2020: Parker Selin
- Class of 2021: Amanda Flatt, Jack Shannon
- Class of 2022: Luke Hussung, Natalie Cha Olguin, Josh Olliges
- Class of 2023: Seoyoung Hu

	 Underclass Advisor for the following students: Class of 2014: Jeffrey Elam, Charlton Hoy, Catherine Hunter, Sarah Lulich, Michael Orr, Kristin Raque, Edward Roberts, Leah Storch Class of 2016: Sean Dunn, Julie Gates, Han He, Victor Pataky, Aubrey Russak-Pribble, Emma Schreiner, Madelyn Schartz, Sam Spees, Jean VanNoppen, Haofei Zou
	Class of 2018: Natalie Appel, Bradley Baker, Justin Dominique, Jill Edington Molly Holder, Henry Nguyen, Sully Smoak, Allison Walther, Tyree Wilmoth
	Class of 2020: Cruz Avendano Dreyfuss, Kaitlyn Freeman, Hannah Hooper Manasaa Kannan, Stephanie Keller, Rachel Moore, Ande Peersen Henry Snyder, Kevin Wagoner, Mary Yang (Brown Fellows)
	Class of 2021: Will Hardy, Kate Himick, Injee Hong, Amelia Lorrey, Luke Martin, Makena Mette, Austin Shotwell, Delia Smith, Maggie Sunseri Brendan Zink (Brown Fellows)
	Class of 2025: Jackson Arnold, Madhu Gunasena, Emma Howell, Francisco Lacson, Abigail Oaks, Elida Rodriguez, Bailey Rucker, Jonah Stephens, Tim Trieu
Other Service Activities	MAA Committee on Mincourses, Member, January 2017-Present Secretary of the KYMAA (Kentucky Section of MAA), Spring 2018-Spring 2021 Site coordinator for KYMAA Annual Spring Meeting at Centre College, Spring 2019 Vice-Chair of the KYMAA (Kentucky Section of MAA), Fall 2013 - Spring 2016 Judge, MAA Undergraduate Student Poster Session, Joint Mathematics Meetings, January 2014 Abstract Reviewer, National Conference for Undergraduate Research, December 2013 Judge, MAA Undergraduate Student Poster Session, Joint Mathematics Meetings, January 2013 Liaison Coordinator for the KYMAA (Kentucky Section of MAA), Fall 2010 to Present Reviewer for Mathematical Reviews Led 3 Central Kentucky High School Math Circle meetings, University of Kentucky Referee for Indiana University Mathematics Journal Judge, MAA Undergraduate Student Poster Session, Joint Mathematics Meetings, January 2011
Professional Memberships	Mathematical Association of America (MAA) Pi Mu Epsilon