

# Kristin Courtney

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## Personal

Born: 1988  
Citizenship: United States of America

## Education

B.S. Mathematics, Summa cum laude and University Honors Scholar, Auburn University, 2010.

B.A. Philosophy, Summa cum laude and University Honors Scholar, Auburn University, 2010.

M.S. Mathematics, Auburn University, 2013.

Ph.D. Mathematics, University of Virginia, 2018.

Advisor: David Sherman

Thesis Title: "C\*-algebras and their finite-dimensional representations"

## Employment

*Akademischen Rätin auf Zeit* (postdoc), WWU Münster, April 2020- March 2023.

*Wissenschaftlicher Mitarbeiterin* (postdoc), WWU Münster, September 2018- March 2020.

## Articles

### *Published*

K. Courtney, T. Shulman. "Free products with amalgamation over central C\*-subalgebras," to appear in Proc. Amer. Math. Soc.. [arXiv:1809.09134](https://arxiv.org/abs/1809.09134)

K. Courtney, T. Shulman. "Elements of C\*-algebras attaining their norm in a finite-dimensional representation," *Canad. J. Math.* **71** (2019), Issue 1, 93-111. <http://dx.doi.org/10.4153/CJM-2017-040-x> ([arxiv:1707.01949](https://arxiv.org/abs/1707.01949)).

K. Courtney, D. Sherman. "The universal C\*-algebra of a contraction," to appear in *J. Operator Theory*. [arXiv:1811.04043](https://arxiv.org/abs/1811.04043)

### *Preprints*

K. Courtney. "Universal C\*-algebras with the Local Lifting Property," [arXiv:2002.02365](https://arxiv.org/abs/2002.02365)

B. Armstrong, L. Orloff Clark, K. Courtney, Y-F. Lin, K. McCormick, and J. Ramagge. "Twisted Steinberg algebras," [arXiv:1910.13005](https://arxiv.org/abs/1910.13005)

## Honors and Awards

National Science Foundation, Groundwork for Operator Algebras Lecture Series (\$42,000), April 01, 2020- September 30, 2021.

American Institute of Mathematics, Structured Quartet Research Ensembles (SQuaRE), August 2019.

Oberwolfach Leibniz Graduate Students Grant recipient, August 2019.

American Mathematical Society, Joint Math Meetings 2018 Travel Grant.

Association for Women in Math, Joint Math Meetings 2018 Workshop Grant.

US Junior Oberwolfach Fellow, September 2017.

All-University Graduate Teaching Award, University of Virginia, April 2017.

Spring Dissertation Fellowship, University of Virginia, Spring 2017.

Invited Researcher, Intensive Research Program on Operator Algebras: Dynamics and Interactions, Centre de Recerca Matemàtica, Bellaterra, March-July 2017.

Auburn University Outstanding Masters Student, May 2013.

College of Science and Math Graduate Teaching Assistant Award Department Nominee, March 2013.

College of Science and Math Dean's Research Award for Masters Students Department Nominee, March 2013, March 2012.

Auburn University Department of Math and Statistics Excellence in Research Award, December 2012, December 2011.

## Presentations

### *Invited*

Special Week on Operator Algebras, East China Normal University, Shanghai, June 2020.

Operator Algebra Seminar, Université de Paris, March 2020.

IMIA Operator Algebra and Noncommutative Geometry Seminar, University of Wollongong, March 2020.

Seminar "Groups and Analysis", Université de Neuchâtel, November 2019.

Mathematics Colloquium, Queens University Belfast, November 2019.

BIRS Workshop 19w5134 Classification Problems in von Neumann Algebras, Banff International Research Station for Mathematical Innovation and Discovery (BIRS), September 2019.

University of Virginia Operator Theory Seminar, September 2019.

BIRS Workshop 19w5073 Topology and Measure in Dynamics and Operator Algebras, BIRS, September 2019.

Oberwolfach Workshop 1933:  $C^*$ -algebras, MFO, August 2019.

KU Leuven Operator Algebra Seminar, May 2019.

University of Sydney Algebra Seminar, March 2019.

University of Glasgow Analysis Seminar, February 2019.

University of New Hampshire Analysis Seminar, November 2018.

East Coast Operator Algebras Symposium, Texas Christian University, October 2018.

International Congress of Mathematicians-Satellite Conference in Operator Algebras, Florianópolis, Brazil, July 2018.

(Sub)factors in Maui, University of Hawaii Maui College, May 2018.

AMS Sectional Meeting– Special Session on Advances in Operator Algebras, Vanderbilt University, April 2018.

University of New Hampshire Mathematics Colloquium, April 2018.

Workshop on computability of K-theory for  $C^*$ -algebras, Texas A& M University, February 2018.

University of Glasgow Analysis Seminar, January 2018.

WWU Münster Oberseminar  $C^*$ -Algebren, January 2018.

Joint Mathematics Meetings– Special Session on Advances in Operator Algebras, San Diego, CA, January 2018.

Joint Mathematics Meetings AWM Workshop Poster Session, San Diego, CA, January 2018.

Brazos Analysis Seminar, University of Houston, November 2017.

Pennsylvania State University Noncommutative Geometry Seminar, October 2017.

University of Manitoba Functional Analysis Seminar Series, October 2017.

Oberwolfach Mini-Workshop: MASAs and Automorphisms of  $C^*$ -Algebras, Mathematisches Forschungsinstitut Oberwolfach (MFO), September 2017.

Noncommutative Geometry and Operator Algebras Spring Institute (NCGOA), Vanderbilt University, May 2017.

United States Naval Academy Operator Algebras and Dynamics Seminar, April 2017.

Virginia Commonwealth University Analysis, Logic, and Physics Seminar, April 2017.

Technische Universität Dresden Seminar Geometrie, March 2017.

University of New Hampshire Analysis Seminar, February 2017.

### *Contributed and Home Seminars*

Groupoids, Graphs, and Algebras, University of Sydney, July 2019.

WWU Oberseminar  $C^*$ -Algebren, June 2019.

Thematic Research Program: Operator Algebras, Groups and Applications to Quantum Information: International Conference, ICMAT, Madrid, June 2019.

Young Mathematicians in  $C^*$ -algebras, KU Leuven, August 2018.

Great Plains Operator Theory Symposium, Texas Christian University, May 2017.

University of Virginia Operator Theory Seminar, (11 talks) March 2018, September 2017, August-September 2016, March 2016, September 2015, April 2015.

University of Virginia Graduate Seminar, January 2016, April 2015.

Joint Mathematics Meetings. Graduate Education Mentoring Workshop, Seattle, WA, January 2016.

## Professional Experience, Development, and Service

Young Mathematicians in  $C^*$ -algebras (YMC\*A) 2020, Organizer, WWU Münster, August 2020.

Focus Programme "Operator algebras and topological dynamics: amenability and beyond", Organizer WWU Münster, June-August 2020.

Groundwork for Operator Algebras Lecture Series (GOALS) Summer School for graduate students, Organizer and Lecturer, Michigan State University, June-July 2020.

W2 Professor Temporary Position Job Search Committee, WWU Münster, 2019.

YMC\*A 2019, Organizer, University of Copenhagen, August 2019.

Young Women in  $C^*$ -algebras (YWC\*A) 2018, Organizer, KU Leuven, August 2018.

Teaching for Diversity Workshop, Organizer, University of Virginia (UVA), August 2017.

Three Minute Math Thesis Competition, Organizer, UVA, January 2017.

Graduate Student Seminar Chair, UVA, Fall 2016-Spring 2018.

Seminar on College Teaching (Mathematics), Invited Speaker, UVA, Fall 2017.

Teaching Mentor for Junior Mathematics Graduate Teaching Assistants, UVA, Fall 2016, Fall 2017.

Association of Women in Mathematics Mentor, UVA, Fall 2016-Spring 2018.

Association of Women in Mathematics UVA Chapter Officer, Fall 2016-Spring 2017.

Math Ambassadors Outreach Program, UVA, Fall 2014-Spring 2018.

Flipped-Classroom: Calculus-Instruction Workshop, UVA, May 2016.

Women Leadership Symposium Panelist, Auburn University, May 2013.

### *Invited Workshop Participation*

BIRS Workshop 19w5134 Classification Problems in von Neumann Algebras, BIRS, September 2019.

BIRS Workshop 19w5073 Topology and Measure in Dynamics and Operator Algebras, BIRS, September 2019.

Oberwolfach Workshop 1933:  $C^*$ -algebras, MFO, August 2019.

BIRS Workshop 18w5155 Model Theory and Operator Algebras, BIRS, November 2018.

BIRS Workshop 18w5168 WOA: Women in Operator Algebras, BIRS, November 2018.

Oberwolfach Mini-Workshop: MASAs and Automorphisms of  $C^*$ -Algebras, MFO, September 2017.

## Teaching Experience

### *WWU Münster*

**Co-organizer (with Prof. Echterhoff)** Bachelors Seminar on Functional Analysis, SS20.

**Teaching Assistant** Functional Analysis WS19-20.

**Teaching Assistant** Operator Algebras II- SS19.

### *University of Virginia*

**Instructor:** Financial Math- S18. Proofs in Analysis (Graduate Course)- Summer 17. Calculus I- F15, F17. Applied Calculus I- F14, S16. Applied Calculus II- S15, F16.

**Teaching Assistant** Calculus I- S14. Calculus II- F13.

**Grader** Graduate Complex Analysis- F16. Introduction to Abstract Algebra- S14. Ordinary Differential Equations- F13.

### *Auburn University*

**Instructor:** Calculus III- Summer 13. Pre-Calculus with Algebra and Trigonometry- S13 (2 sections). Calculus II- F12 (2 sections). Calculus I- Summer 12, S12 (2 sections), F11 (2 sections).

**Teaching Assistant:** Introduction to Abstract Algebra- S11. College Algebra - F10. College Algebra Trigonometry- F10.

**Coordinator Assistant:** Pre-Calculus with Trigonometry- S11.