

# Christopher Lee Phan

Curriculum vitæ  
August 2018

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## Academic positions

- **Fixed-term Assistant Professor**, Department of Mathematics and Statistics, Winona State University, Winona, Minnesota, August 2012–May 2018.
- **Visiting Assistant Professor**, Department of Mathematics, Bucknell University, Lewisburg, Pennsylvania, August 2010–May 2012.
- **Temporary Lecturer**, Department of Mathematics, University of Glasgow, Glasgow, Scotland, September 2009–August 2010.
- **Adjunct Instructor**, General Education Department, Cooking & Hospitality Institute of Chicago, Chicago, Illinois, August–September 2009.
- **Graduate Teaching Fellow**, Department of Mathematics, University of Oregon, Eugene, Oregon, September 2003–June 2009.

## Education

- **Ph.D. in mathematics**, University of Oregon, Eugene, Oregon, June 2009.
  - Dissertation: *Koszul and generalized Koszul properties for noncommutative graded algebras*
  - Advisor: Prof. Brad Shelton
  - Jack and Peggy Borsting Award for Scholastic Achievement in Graduate Mathematics, 2008.
- **M.S. in mathematics**, University of Oregon, Eugene, Oregon, June 2005.
- **B.A. in mathematics and communication**, Lewis & Clark College, Portland, Oregon. May 2003.
  - *Summa cum laude*, department honors in communication, Phi Beta Kappa.

## Research articles

- *Quotients of Koszul algebras and 2-d-determined algebras* (with T. Cassidy), *Communications in Algebra*, 42 (2014) 3742–3752. Preprint available at [arXiv:1210.3847](https://arxiv.org/abs/1210.3847).
- *The Yoneda algebra of a graded Ore extension*, *Communications in Algebra*, 40 (2012) 834–844. Preprint available at [arXiv:1002.2318](https://arxiv.org/abs/1002.2318).
- *Localization algebras and deformations of Koszul algebras* (with T. Braden, A. Licata, N. Proudfoot, and B. Webster), *Selecta Mathematica*, 17 (2011) 533–572. Preprint available at [arXiv:0805.1335](https://arxiv.org/abs/0805.1335).
- *Noncommutative Koszul algebras from combinatorial topology* (with T. Cassidy and B. Shelton), *Journal für die reine und angewandte Mathematik (Crelle's Journal)*, 646 (2010), 45–63. Preprint available at [arXiv:0811.3450](https://arxiv.org/abs/0811.3450).
- *The Yoneda algebra of a  $\mathcal{K}_2$  algebra need not be another  $\mathcal{K}_2$  algebra* (with T. Cassidy and B. Shelton), *Communications in Algebra*, 38 (2010) 46–48. Preprint available at [arXiv:0810.4656](https://arxiv.org/abs/0810.4656).
- *Generalized Koszul properties for augmented algebras*, *Journal of Algebra* 321 (2009) 1522–1537. Preprint available at [arXiv:0711.3480](https://arxiv.org/abs/0711.3480).

## Academic service

- Winona State University Faculty Association (WSUFA) Contingent Appointments Committee, Spring 2017–Spring 2018.
- Instructor and helper for Software Carpentry faculty workshop at WSU, Spring 2017 and Fall 2017.
- WSU Math/Stat Department Recruitment Committee, Fall 2016–Spring 2018.
- WSU Math/Stat Department Assessment Day Task Force, Fall 2016–Spring 2018.
- WSUFA Personnel, Policies, and Grievance Committee, Fall 2015–Spring 2018.
- WSU Math/Stat Department Math Achievement Center Task Force, Fall 2015–Spring 2016.
- WSU Math/Stat Department Logo Task Force, Fall 2015–Spring 2016.
- WSU Math/Stat Department MAA-NCS Meeting Task Force (local committee to host sectional MAA meeting at WSU), Fall 2014–Spring 2015.
- WSU Math/Stat Department Communications Committee member, Fall 2012–Spring 2018; Committee chair, Fall 2014–Spring 2016.
- WSU Student Affairs Committee member, Fall 2013–Spring 2018.

- Local coordinator for Putnam Exam and MAA-NCS Team Competition, Fall 2014, Fall 2015, Fall 2016.
- WSU Math/Stat Department Math Placement Task Force member, Fall 2013–Spring 2014.
- University of Oregon Mathematics Department Graduate Affairs Committee student representative, Spring 2006–Winter 2007.
- Final exam co-coordinator, Math 112 (Elementary Functions), UO Mathematics Department, Winter 2006.
- Final exam co-coordinator, Math 111 (College Algebra), UO Mathematics Department, Fall 2005.
- UO Ring Theory Seminar (graduate student algebra seminar) organizer, Spring 2005–Spring 2007.

## Selected presentations

- “Attempt to Implement Peer Instruction and Just-in-Time Teaching in Lower-Division Mathematics Classes”, North Central Section MAA Meeting, Winona State University, April 25, 2015.
- “Uniquely reducing polynomials: Gröbner bases and the diamond lemma”, North Central Section MAA Meeting, University of Minnesota Duluth, October 20, 2012.
- “Delayed Koszul duality”, Joint Mathematics Meetings, Boston, Massachusetts, January 6, 2012.
- “Delayed Koszul duality”, Southeastern Section AMS Meeting, Wake Forest University, September 24, 2011.
- “Structural results for the Yoneda algebra of a connected-graded algebra”, Joint Mathematics Meetings, New Orleans, Louisiana, January 7, 2011.
- “Graded Ore extensions and the  $\mathcal{K}_2$  property”, Southeastern Section AMS Meeting, University of Kentucky, March 27, 2010.
- “Generalised Koszul properties for noncommutative graded algebras”, University of Edinburgh and Heriot–Watt University Algebra Seminar, March 21, 2010.
- “Noncommutative Koszul algebras from combinatorial topology”, University of Glasgow Algebra Seminar, January 13, 2010.
- “Noncommutative Koszul algebras from combinatorial topology”, Joint Mathematics Meetings, Washington, District of Columbia, January 5, 2009.
- “ $\mathcal{K}_2$  properties for augmented algebras”, Western Section AMS Meeting, University of British Columbia, October 5, 2008.

- “Generalized Koszul properties for augmented algebras”, University of Oregon Algebra Seminar, May 27, 2008.
- “Generalized Koszul properties for filtered algebras”, Pure Math Graduate Student Seminar, Simon Fraser University, October 12, 2007.

## Teaching experience

- **At Winona State University:**

- **Abstract Algebra I and II** (MATH 447 and 448, respectively). Introductory sequence in abstract algebra. Properties of  $\mathbb{Z}$ , properties of  $\mathbb{Q}[x]$ , rings, ideals, ring homomorphisms, isomorphism theorem for rings, groups, subgroups, group homomorphisms, normal subgroups, isomorphism theorem for groups. Emphasis on writing (MATH 447) and public speaking (MATH 448). Fall 2014 (MATH 447), Spring 2015 (MATH 448).
- **Differential Equations** (MATH 313). Ordinary differential equations, systems of linear differential equations, Laplace transforms, and series solutions. Taught with an emphasis on modeling. Fall 2013
- **Linear Algebra for Differential Equations** (MATH 314). Systems of linear equations, matrix algebra, and eigenvalues and eigenvectors, with an emphasis on material needed for solving systems of differential equations. Taught in conjunction with MATH 313. Fall 2013.
- **Linear Algebra** (MATH 242). Standard undergraduate introduction to linear algebra, including systems of equations, matrix algebra, vector spaces, linear transformations, and eigenvectors/eigenvalues. Spring 2017.
- **Calculus I** (MATH 212). Differential calculus. Spring 2014, Fall 2014, Spring 2015.
- **Calculus II** (MATH 213). Integral calculus, sequences and series, and parametric and polar equations. Spring 2014, Spring 2016.
- **Applied Calculus** (MATH 140). Differential and integral calculus with rational, exponential, and logarithmic functions with an emphasis on applications. Spring 2013, Spring 2015, Spring 2016, Fall 2016.
- **Precalculus** (MATH 120). Polynomial, rational, exponential, and trigonometric functions, as well as parametric and polar coordinates, basic sequences, and finite sums. Spring 2014, Fall 2014.
- **College Algebra** (MATH 115). Equations, inequalities, functions, graphs, polynomial functions, rational functions, exponential functions, logarithmic functions, systems of equations, and systems of inequalities. Fall 2016, Fall 2017.
- **Fundamentals of Statistics** (STAT 110). Introductory statistics for non-majors with emphasis on applications. Fall 2012, Spring 2013, Fall 2013, Summer 2014, Fall 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017, Spring 2018.

- **Intermediate Algebra** (MATH 050). A review of pre-algebra and intermediate algebra topics designed to prepare the student for college-level mathematics: Fall 2012, Spring 2013, Fall 2013.
- **At Bucknell University:**
  - **Discrete Structures** (Math 241). Logic, proofs, sets, basic number theory, congruences, combinatorics, discrete probability, and graph theory, primarily for computer science and computer engineering students. Spring 2011.
  - **Differential Equations** (Math 212). Ordinary differential equations, systems of linear differential equations, Laplace transform. Fall 2010, Fall 2011.
  - **Calculus I** (Math 201). Differential calculus. Fall 2010, Fall 2011.
  - **Calculus II** (Math 202). Integral calculus, basic differential equations, sequences and series, and parametric and polar equations. Spring 2011.
  - **Topics in Calculus** (Math 192). Differential and integral calculus with rational, exponential, and logarithmic functions and a focus on business applications. Spring 2012.
  - **Introduction to Mathematical Modeling** (Math 112). General education course with an overview of various mathematical modeling topics, such as graph theory, probability, and algorithms. Spring 2012.
- **At the University of Glasgow:**
  - **Complex Algebraic Curves** (Maths 5M). Plane algebraic curves, Bézout's Theorem, degree-genus formula, Riemann surfaces. Spring 2010.
  - **Discrete Mathematics** (Maths 4H). Congruences, recurrence relations, combinatorics, quadratic reciprocity, graph theory. Spring 2010.
  - **Mathematics for Electrical Engineering** (EE1Y). Differentiation and integration, for electrical engineering students. Spring 2010.
- **At the Cooking and Hospitality Institute of Chicago:** (6-week term)
  - **General College Mathematics** (Mat 1121). Weights and measures, recipe conversions, recipe costing, introductory statistics, algebra, and financial mathematics, for culinary students. August–September 2009.
  - **Basic College Mathematics** (Mat 099). Arithmetic of whole numbers, fractions, decimals, ratios, proportions, and measurements, basic algebra, for culinary students: August–September 2009.
- **At the University of Oregon:** As a graduate teaching fellow, I taught the classes listed below. I delivered lectures, wrote and graded quizzes and exams, administered homework (including use of the WebAssign or WeBWorK computerized homework scoring system or supervising an undergraduate paper marker), and assigned final grades.

- **Calculus I** (Math 251). Differential calculus for math and science majors. Winter 2005, Fall 2008, Spring 2009.
- **Calculus II** (Math 252). Integral calculus for math and science majors. Spring 2005, Summer 2006.
- **Calculus III** (Math 253). Calculus with parametric functions and in polar coordinates, series and sequences, for math and science majors. Fall 2006, Fall 2007.
- **Calculus for Business and Social Science I** (Math 241). Differential calculus with a focus on business applications. Summer 2007.
- **Calculus for Business and Social Science II** (Math 242). Integral calculus with a focus on business applications. Summer 2005.
- **Calculus for the Biological Sciences I** (Math 246). Differential calculus and series with a focus on biological applications. Winter 2008.
- **Introduction to Probability and Statistics** (Math 243). Introduction to probability, significance testing, and regression. Summer 2004.
- **Elementary Functions** (Math 112). Trigonometry and complex numbers. Winter 2006.
- **College Algebra** (Math 111). Functions, function notation, graphing functions, rational functions, exponential and logarithmic functions. Fall 2003, Winter 2003, Fall 2004, Fall 2005, Winter 2007, Fall 2007.
- **University Mathematics II** (Math 106). General education course touching on a variety of topics from geometry, the mathematics of finance, and exponential and logarithmic models. Summer 2008.