Charles Buehrle
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CURRICULUM VITAE

CHARLES E. BUEHRLE

Citizenship: United States.

Research interests:

Algebraic combinatorics: special bases of quantum groups and Hecke algebras, Hecke algebra and symmetric group representations, Iwahori-Hecke algebra characters, vanishing sets of polynomials in n^2 variables, prefix reversal sorting, Coxeter presentations of finite groups, the word problem on Coxeter groups.

Education:

LEHIGH UNIVERSITY — Bethlehem, PA
August 2005-May 2010
Ph.D., Mathematics, May 2010. Thesis: *The Hecke algebra of the symmetric group and the quantum immanant space* supervised by Mark Skandera.
M.S., Mathematics, May 2007.

LA SALLE UNIVERSITY — Philadelphia, PA
August 2001-May 2005
B.S., Mathematics, *Minor:* Computer Science, May 2005.

Professional history:

NOTRE DAME OF MARYLAND UNIVERSITY — Baltimore, MD
Associate Professor, August 2019-Present.
Assistant Professor, August 2016-August 2019.
Lecturing for undergraduate mathematics courses. Developing classroom materials, assignments, and exams. Participating in university, school, and departmental service. Continuing scholarship activities.

FRANKLIN & MARSHALL COLLEGE — Lancaster, PA
Visiting Assistant Professor, August 2014-May 2016.
Lecturing for undergraduate mathematics courses. Developing classroom materials, assignments, and exams. Participating in department service. Continuing scholarship activities.

HARRISBURG AREA COMMUNITY COLLEGE — Harrisburg, PA
Assistant Professor, August 2011-August 2015.
Lecturing for developmental, technical, and traditional undergraduate mathematics

Date: September 1, 2018.

and computer science courses. Participating in college service including serving on committees and volunteering for campus activities.

Franklin & Marshall College Lancaster, PA
Adjunct Professor, August 2012-July 2014.
Lecturing for undergraduate mathematics courses. Developing classroom materials, assignments, and exams.

Harrisburg Area Community College Harrisburg, PA
Para-Professional Tutor, August 2011-May 2012
Tutored students in courses in the areas of mathematics, computer science, physics, engineering, and chemistry.

Glatfelter Corporation Spring Grove, PA
IT Contractor, January 2011-February 2011.
Designed and developed web-based applications. Programmed Object-oriented applications for ASP .NET with VB.NET code-behind, SQL Server 2008 databases, and Crystal Reports.

Harrisburg Area Community College York, PA
Adjunct Professor, August 2010-August 2011.
Lectured for developmental, technical, and traditional undergraduate mathematics courses.

Lehigh University Bethlehem, PA
Teaching/Research Assistant, August 2005-May 2010.
Researched quantum groups and Hecke algebras. Supervised recitation sessions for all three semesters of calculus. Graded exams, homework, and quizzes. Tutored undergraduates in the walk-in help center.

Lehigh University Bethlehem, PA
Calculus Instructor, August 2009-January 2010
Lectured for undergraduate course in first semester calculus. Assigned homework and authored quizzes and examinations.

Glatfelter Corporation Spring Grove, PA
IT Department Intern, Summer 2005, 2006.
Developed and supported web-based and system specific applications for internal and customer use. Coded in VB .NET, ASP .NET, C# VB 6, VBA, DOS Batch scripting, and Javascript. Edited and designed images using Adobe Photoshop for customer transaction site.

Date: November 2, 2023

Teaching:

- As a Professor at NDMU
  - MAT 103: *Applied Algebra*. Fall 2017, Fall 2019, Fall 2020, Fall 2021, Spring 2022 A (online), Spring 2023 A (online).
  - MAT 107: *Elementary Functions*. Spring 2017, Spring 2018, Spring 2020, Spring 2022, Spring 2023.
  - MAT 116: *Practical Mathematics*. Fall 2023.
  - MAT 121: *Geometry and Graphs*. Fall 2023 B (online).
  - MAT 211: *Calculus I*. Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2020, Fall 2021, Fall 2022, Fall 2023.
  - MAT 212: *Calculus II*. Spring 2017, Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022.
  - MAT 215: *Basic Statistics*. Spring 2022 B (online), Spring 2023 B (online).
  - MAT 301: *Abstract Algebra*. Fall 2016, Fall 2018, Fall 2020, Fall 2022.
  - MAT 315: *Differential Equations*. Fall 2023.
  - MAT 309: *Number Theory*. Spring 2019.
  - MAT 406: *Complex Variables*. Fall 2018, Spring 2021.
  - MAT 455: *History of Mathematics*. Spring 2017, Spring 2019, Spring 2021, Spring 2023.
  - MAT 463: *Independent Study*. Spring 2019, Spring 2020, Fall 2021.
- As a Professor at F&M
  - MAT 105: *Preparation for College Mathematics*. Fall 2012, Fall 2014, Spring 2016.
  - MAT 109: *Calculus I*. Fall 2013, Spring 2014, Summer 2014, Fall 2014, Summer 2015, Summer 2016.
  - MAT 110: *Calculus II*. Spring 2015, Fall 2015.
  - MAT 237: *Discrete Mathematics*. Fall 2015.
  - CPS 111: *Computer Science I*. Fall 2015, Spring 2016.
- As a Professor at HACC
  - MATH 010: *Prealgebra*. Summer 2011, Fall 2011, Spring 2012.
  - MATH 020: *Beginning Algebra*. Fall 2010, Spring 2011, Fall 2011.
  - MATH 051: *Intermediate Algebra*. Spring 2011, Summer 2011, Spring 2012, Summer 2012, Fall 2012, Spring 2013, Summer 2013, Fall 2013, Spring 2014.
  - MATH 103: *College Algebra*. Spring 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014.
  - MATH 104: *Trigonometry*. Summer 2013.
  - MATH 110: *Applied Calculus for Business*. Summer 2019.
  - MATH 111: *Survey of Mathematics*. Fall 2010.
  - MATH 119: *Pre-Calculus*. Summer 2012, Fall 2012, Spring 2013, Summer 2017.
  - MATH 121: *Calculus I*. Fall 2013, Summer 2018.
  - MATH 122: *Calculus II*. Spring 2014, Summer 2014, Summer 2015.
  - MATH 221: *Calculus III*. Spring 2016, Summer 2016, Summer 2017.
  - MATH 161: *Technical Mathematics*. Fall 2010, Summer 2011, Fall 2011, Spring 2012.
  - CPS 135: *C Programming*. Fall 2013.
  - CPS 161: *Computer Programming I*. Spring 2014.
- As an Instructor at Lehigh

  - Math 75: *Calculus I Part A*. Fall 2009.
  - Math 76: *Calculus I Part B*. Spring 2009.
- As a Teaching Assistant at Lehigh
  - Math 21: *Calculus I*. Fall 2005.
  - Math 22: *Calculus II*. Spring 2006, Spring 2007, Fall 2007.
  - Math 23: *Calculus III*. Fall 2006, Fall 2008.
  - Math 76: *Calculus I Part B*. Spring 2008.

Publications:

(1) "Bounds on the genus for 2-cell embeddings of prefix-reversal graphs," with Saúl Blanco, *submitted to Combinatorics, Computing, and Probability.*

(2) "Lengths of cycles in generalized pancake graphs," (with Saúl Blanco), *Discrete Mathematics* 346(12) Dec 2023. https://https://linkinghub.elsevier.com/retrieve/pii/S0012365X23003102.

(3) "Presentations of Coxeter groups of type A, B, and D using prefix reversal generators," (with Saúl Blanco), *AAAECC* (2022) https://doi.org/10.1007/s00200-022-00560-9.

(4) "Some relations on prefix reversal generators of the symmetric and hyperoctahedral group," (with Saúl Blanco), *Australasian Journal of Combinatorics* 76(3) 404-427, 2020.

(5) "On the number of pancake stacks requiring four flips to be sorted," (with Saúl Blanco and Akshay Patidar), *DMTCS Permutation Patterns 2018* 21 no.2, 2019.

(6) "Cycles in the burnt pancake graphs," (with Saúl Blanco and Akshay Patidar), *Discrete Appl. Math.* 271(1) Dec 2019, 1-14.

(7) "Relations between the Clausen and Kazhdan-Lusztig representations of the symmetric group," (with Mark Skandera), *J. Pure Appl. Algebra* 214 (2010), no. 5, 689–700.

(8) "A preorder-free construction of the Kazhdan-Lusztig representations of Hecke algebras $H_n(q)$ of symmetric groups," (with Mark Skandera), in *Proceedings of the 22nd annual Conference on Formal Power Series and Algebraic Combinatorics*, 2010. San Francisco, California.

(9) "Relations between the Clausen and Kazhdan-Lusztig representations of the symmetric group," (with Mark Skandera), in *Proceedings of the 21st annual Conference on Formal Power Series and Algebraic Combinatorics*, 2009. Linz, Austria.

Presentations:

7th Workshop on Algebraic Graph Theory and its Applications. (virtual). November 2022.

Southeastern International Conference on Combinatorics, Graph Theory, and Computing, (virtual). March 2021.

Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, Fl. March 2019.
Permutation Patterns, Hanover, NH. July, 2018.
AMS Central Sectional Meeting, Bloomington, IN. April, 2017.
EPaDel Sectional Meeting, Muhlenberg, PA. April, 2016.
F&M Millersville Joint Math Colloquium, Lancaster, PA. November, 2015.
PSMATYC Meeting, Harrisburg, PA. April, 2014.
Joint Mathematics Meeting, Baltimore, MD. January, 2014.
FPSAC Conference, San Francisco, CA. August, 2010.
Joint Mathematics Meeting, San Francisco, CA. January, 2010.
Graduate Student Combinatorics Seminar, U. of Pennsylvania. December, 2009.
Combinatorics Seminar, Arizona State University. November, 2009.
Student Combinatorics Seminar, University of Michigan. November, 2009.
AMS Special Session, Pennsylvania State University. October, 2009.
Graduate Student Colloquium, Lehigh University. October, 2009.
FPSAC Conference, Linz, Austria. July, 2009.
Bi-College Mathematics Colloquium, Bryn Mawr College. March, 2009.
Symposium 2009, Lehigh University. March, 2009.
Guest lecture, University of Pennsylvania. February, 2009.
Graduate Student Colloquium, Lehigh University. January, 2009.

Service:

Department Chair, Math/Physics/CS

Notre Dame of Maryland University

Fall 2023-present
Performing the regular duties of evaluation, annual reports, scheduling, staffing, advising, and curriculum changes.

Faculty Handbook Committee, Chair

Notre Dame of Maryland University

Fall 2023-present
Reviewing proposed Handbook changes, and regular review of existing Handbook language.

Promotion & Tenure Committee Chair

Notre Dame of Maryland University

Fall 2021-present

Reviewing applications for promotion, tenure, or sabbatical and providing recommendations to the University's President.

SASB Curriculum Committee Chair
Notre Dame of Maryland University
Spring 2018-Spring 2022
Evaluating and providing approval of all curriculum changes in the School of Arts, Sciences, and Business.

KME Faculty Sponsor Notre Dame of Maryland University
Spring 2017-present
Serving as the faculty sponsor and corresponding secretary for the mathematics honor society.

UCAP Notre Dame of Maryland University
Fall 2019-Spring 2020
Serving as the SASB Curriculum Committee representative on the University-wide curriculum and policy committee.

IMPRINT Implementation Team Notre Dame of Maryland University
Fall 2018-Spring 2020
Implementing the recommendations of the WE21 Task Force report, e.g. developing a robust mentoring program.

Mathematics Magazine MAA
Fall 2018
Peer reviewer of submitted article in related research areas.

Journal of Algebraic Combinatorics Springer
Spring 2018
Peer reviewer of submitted article in related research areas.

MAA-EPaDel Webmaster MAA-EPaDel
Summer 2012-Summer 2016
Updating and maintaining the Section's website.

Putnam Exam Coordinator Franklin & Marshall College
Fall 2015

Running exam preparation sessions weekly. Proctoring the two three-hour exam sessions.

FACULTY SENATOR Harrisburg Area Community College
Spring 2013-Spring 2015
Serving as the representative of the Mathematics and Computer Science Department in the Faculty Senate's Academics House.

ASSESSMENT COMMITTEE Harrisburg Area Community College
Spring 2013-Spring 2015
Developing a culture of assessment at the college. Supporting program and course assessment initiatives at the college. Facilitating the assessment of General Education outcomes.

CURRICULUM REALIGN COMMITTEE Harrisburg Area Community College
Spring 2012
Reevaluated and redesigned the Beginning Algebra and Intermediate Algebra courses.

IT ASSISTANT FOR AMS SPECIAL SESSION Pennsylvania State University
October 2009
Coordinated laptop presentations for participants of Special Session in algebraic combinatorics.

VICE PRESIDENT FOR GSIMS CLUB Lehigh Mathematics Dept.
June 2009-May 2010
Helped organize an intercollegiate graduate student mathematics seminar, obtained funding for outside speakers, and gave presentations at other universities.

Professional Memberships:

AMS, AWM, KME, and MAA.

Instructional Technology:

Experience with Blackboard, Brightspace, Desire2Learn, edfinity, Geogebra, Geometer's SketchPad, Joule, Mathematica, McGraw-Hill Connect, MyMathLab, MyOpenMath, Quality Matters-Teaching Online Certification, Sage, Smartview, WebAssign, WeBWorK.

Programming Languages/Environments:

Experience with ASP.NET, C, C++, C#, Crystal Reports, GAP, HTML, Java, Javascript, PHP, Python, SQL Server, VB.NET, VB 6, VBScript, XML, Wolfram Language.