

# Ryan Shifler, Ph.D.

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## Academic Appointments

- 2023 – Present > **Associate Professor**, Department of Mathematical Sciences, Salisbury University.
- 2017 – 2023 > **Assistant Professor**, Department of Mathematical Sciences, Salisbury University.
- 2011 – 2017 > **Graduate Teaching Assistant**, Department of Mathematics, Virginia Tech.
- 2011 and 2014 > **Adjunct Faculty**, Developmental Mathematics, Hagerstown Community College.

## Education and Training

- 2025 > **Emerging Leader Program, Leadership Maryland.** (Competitively selected)
- 2013 – 2017 > **Ph.D. in Mathematics**, Virginia Tech.
- 2011 – 2013 > **M.S. in Mathematics**, Virginia Tech.
- 2009 – 2011 > **B.S. in Mathematics**, Salisbury University.
- 2007 – 2009 > **A.A. in Mathematics and A.S. in Arts and Sciences**, Hagerstown Community College.

## Academic Administrative Experience

### Associate Dean of the Richard A. Henson School of Science and Technology, Salisbury University

2022 – Present

Oversee academic programs, transfer pathways, data analytics, and STEM outreach.

#### Director of the Integrated Science Program.

- Direct an interdisciplinary B.S. program serving 50 students across 2 concentrations (45 in Forensic Science, 5 in an individually designed track), advising on degree pathways and clearing barriers to on-time completion.
- Own the program's Academic Program Review, coordinating self-study, assessment data, and external review on a 7-year cycle.
- Designed and shepherded curriculum revisions through faculty governance to align program offerings with graduate-school and workforce pathways.

#### Co-Coordinator, Forensic Science Concentration under the Integrated Science Program

- Authored the proposal that secured USM and Maryland Higher Education Commission (MHEC) approval for the **new B.S. in Forensic Science**, assembling the curriculum developed by the faculty steering committee into the documents required for state review.
- Co-coordinate the concentration that incubated the new degree, and am helping guide its transition to a permanent home in the Department of Chemistry and Biochemistry.
- Negotiated and now administer a cross-enrollment MOU with Wor-Wic Community College, giving 45 forensic science students access to 7 specialized courses unavailable at Salisbury University.

#### Oversight of the Urban and Regional Planning Program.

- Provide oversight for the Urban and Regional Planning program, supporting curriculum updates through institutional approval and keeping offerings aligned with evolving university policy.

#### Articulation Agreements for STEM Transfer Pathways.

- Established 10+ STEM articulation agreements with 7+ regional community colleges.
- Convened faculty across institutions to align curricula and reduce barriers in the transfer process.

## **Academic Administrative Experience (continued)**

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### **Data Analytics for Institutional Decision-Making.**

- Built multi-year analyses of DFW (drop, fail, withdraw) rates, completion, major-switching, and session enrollment of first-time students, surfacing patterns that informed advising, scheduling, and curriculum decisions.
- Led an assessment of math and chemistry placement instruments, quantifying their predictive validity for first-year success across 1000+ students.
- Drove the analysis behind Salisbury University's shift to high-school-transcript-based Calculus I placement — an institution-wide policy change now affecting 200 incoming students each year.

### **STEM Outreach Initiatives.**

- Serve as an ex officio member of the STEM Outreach Committee, advocating for resources to support faculty-led initiatives.
- Run the school's outreach channels — 2 Henson Seminars and 2 newsletters per year reaching 2000+ faculty, students, and community members.

### **Mathematics and Computer Science Tutor Coordinator, Salisbury University**

Fall 2021 – Spring 2022 and Spring 2018 – Spring 2019

- Facilitated student application and hiring processes in collaboration with Department Chairs.
- Managed student employment contracts, ensured compliance with Human Resources requirements, and met all reporting deadlines.
- Expanded the tutor pool by recruiting across all science programs, broadening both subject coverage and the makeup of the tutoring staff.
- Implemented an electronic sign-in system to track student attendance and improve operational efficiency.

### **Calculus Readiness Director, Salisbury University**

Spring 2018 – Spring 2019

- Designed and launched Calculus Readiness, the department's first co-requisite support structure for Calculus I students, building the full infrastructure for session design, student scheduling, and peer leader management.
- Served 150 students across 6 sections, improving prerequisite preparedness in response to a department-wide need.

## **Service to Salisbury University**

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### **University System of Maryland (USM) Level**

- Member, USM Admissions Standards Task Force, Fall 2025 – Present.
- Member, USM High School Math Course Evaluation Group, Fall 2023 – Present.
- Co-Chair, USM-MACC (Maryland Association of Community Colleges) Math Affinity Group, Fall 2022 – Present.

### **University Level**

- Member, Search Committee for the Director of the Center for Student Achievement, Summer 2026.
- Member, Athletics Committee, Fall 2019 – Spring 2027.

## Service to Salisbury University (continued)

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- Member, Government Relations Committee, Fall 2024 – Spring 2026.
- Chair, Long Range Academic Planning Committee, Fall 2024 – Spring 2025.
- Member, Faculty Development Committee, Fall 2021 – Spring 2024.

### Department Level

- Member, Tenure and Promotion Committee, [Name 1 confidential], Fall 2023 – Present.
- Member, Tenure and Promotion Committee, [Name 2 confidential], Fall 2023 – Present.
- Member, Search Committee for Statistics Faculty, Fall 2022 – Spring 2023.
- Organizer, Department Colloquium, Spring 2021 – Spring 2022.

### University Community

- Faculty Advisor, Club Cross Country and Track and Field Team, Fall 2022 – Present.

## Service to the Profession

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### External Reviewer

- Promotion to Associate Professor with Tenure, Mathematics, [Institution confidential], 2026.

### Editorial

- Associate Editor, Mathematics Magazine, 2026 – Present.

### Mathematical Association of America (MAA)

- Program Chair, MD-DC-VA Section of the MAA, Fall 2020 – Fall 2022.
- Salisbury University Representative/Site Coordinator, MD-DC-VA Section Meeting, Spring 2020 and Fall 2021.

### Maryland State Department of Education (MSDE)

- Co-Chair, Launch Years Task Force — statewide initiative to strengthen the transition from high school to college-level mathematics, Fall 2024 – Present.

### Refereeing and Reviewing

- Quantum computing textbook proposal, Cambridge University Press.
- Journal of Algebraic Combinatorics, Communications in Algebra, Mathematics Magazine.

## Publications

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In pure mathematics, authors are listed in alphabetical order. It is generally accepted that each author contributed equally to the work.

**Bold font indicates undergraduate coauthors.**

### Research

- *Minimum quantum degrees with Maya diagrams in a family of odd orthogonal partial flag varieties*, submitted (with **S. Barr**).

## Publications (continued)

- *On the quantum parameter in the quantum cohomology of a family of odd symplectic partial flag varieties*, Journal of Algebra and Its Applications, to appear (with **C. Bean** and **C. Shank**).
- *Curve neighborhoods and combinatorial property  $\mathcal{O}$  for a family of odd symplectic partial flag manifolds*, Rocky Mountain Journal of Mathematics, to appear (with **C. Bean** and **B. Cruikshank**).
- *Minimum quantum degrees with Maya diagrams*, Annals of Combinatorics 29 (2), 395–413, 2025.
- *Positivity determines the quantum cohomology of the odd symplectic Grassmannian of lines*, Communications in Algebra 52 (11), 4955–4960, 2024.
- *Curve neighborhoods of Schubert varieties in the odd symplectic Grassmannian*, Transformation Groups 29 (1), 361–408, 2024 (with C. Pech).
- *On the spectral properties of the quantum cohomology of the odd quadrics*, Involve, a Journal of Mathematics 16 (1), 27–34, 2023 (with **S. Warman**).
- *Minimum quantum degrees for isotropic Grassmannians of types B and C*, Annals of Combinatorics 26 (2), 453–480, 2022 (with C. Withrow).
- *On Frobenius-Perron dimension*, Proceedings of the American Mathematical Society 150 (12), 5035–5045, 2022 (with C. Li, M. Yang, and **C. Zhang**).
- *Galkin’s lower bound conjecture holds for the Grassmannian*, Communications in Algebra 48 (2), 857–865, 2020 (with **L. Evans**, L. Schneider, **L. Short**, and **S. Warman**).
- *Conjecture  $\mathcal{O}$  holds for some horospherical varieties of Picard rank 1*, Involve, a Journal of Mathematics 13 (4), 551–558, 2020 (with **L. Bones**, **G. Fowler**, and L. Schneider).
- *Conjecture  $\mathcal{O}$  holds for the odd symplectic Grassmannian*, Bulletin of the London Mathematical Society 51 (4), 705–714, 2019 (with C. Li and L. Mihalcea).
- *Equivariant quantum cohomology of the odd symplectic Grassmannian*, Mathematische Zeitschrift 291 (3–4), 1569–1603, 2019 (with L. Mihalcea).

## Other

- *Faculty writing groups for mathematicians*, MAA Focus (October/November 2018) (with J. Anderson, J. Austin, Y. Jing, L. Schneider, and S. Wesolowski).

## Student Mentee Awards and Recognition

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|---------------------|---|
| Departmental Honors | ➤ <b>Stephen Barr</b> (2026), <b>Caleb Shank</b> (2025), <b>Stephanie Warman</b> (2021), <b>Laurie Short</b> (2021), and <b>Garrett Fowler</b> (2019).  |
| University Honors   | ➤ <b>Connor Bean</b> (2024), <b>Stephanie Warman</b> (2021).  |
| External Awards     | ➤ <b>Stephen Barr</b> won the first-place Student Poster Award, MD-DC-VA Sectional Meeting of the MAA, Spring 2026.<br>➤ <b>Garrett Fowler</b> won the second-place Student Talk Award, MD-DC-VA Sectional Meeting of the MAA, Spring 2019.<br>➤ <b>Lela Bones</b> and <b>Garrett Fowler</b> received the Outstanding Poster Award, Joint Mathematics Meetings, 2019. |

## Funding

### Grants

- \$12,000 — Faculty Research Enhancement Grant, Salisbury University, 2024. Collaborative project supporting STEM transfer students (with J. Sokoloski, S. Daly, G. Franchi).

## Funding (continued)

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- \$10,645 — Faculty Research Enhancement Grant, Salisbury University, 2020. Project on quantum Schubert calculus.

### Student Research

- Henson Summer Research Program, Salisbury University — Summer 2026: Ian Abrego (\$3,300); Summer 2025: Stephen Barr (\$3,300); Summer 2023: Connor Bean and Caleb Shank (\$4,000); Summer 2022: Connor Bean and Bradley Cruikshank (\$4,000).

### Travel Awards

- \$5,118 — Henson Travel Awards and other funding (7 awards, 2018–2026).

## Presentations

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### Invited Talks

- *Geometry, Symmetry, and Counting Curves: A Combinatorial Perspective*, Virginia Tech, Blacksburg, VA, Department Colloquium, January 23, 2026.
- *Curve neighborhoods of Schubert varieties of the odd symplectic Grassmannian*, Eastern Fall Sectional Meeting of the American Mathematical Society, UMass Amherst, Amherst, MA, October 1–2, 2022.
- *Curve neighborhoods of Schubert varieties of the odd symplectic Grassmannian*, Virginia Tech, Blacksburg, VA, Algebra Seminar, January 28, 2022.
- *Curve neighborhoods of Schubert varieties of the odd symplectic Grassmannian*, University of Poitiers, Groups, Algebra, and Geometry Seminar, virtual, November 18, 2021.
- *Equivariant quantum cohomology of the odd symplectic Grassmannian*, Rutgers University, Algebra Seminar, New Brunswick, NJ, February 22, 2017.

### Selected Contributed Presentations

- *A case for quantum computing in math departments* at the Spring Meeting of the MD-DC-VA section of the MAA, Frederick Community College, Frederick, MD, April 24–25, 2026.
- *Quantum cohomology determined with negative structure constants* at The Joint Mathematics Meetings, San Francisco, CA, January 3–6, 2024.
- *A proposed generalization of a full rim hook removal on partitions* at the Spring Meeting of the MD-DC-VA section of the MAA, Montgomery College, Germantown, MD, April 22–23, 2022.
- *Calculus readiness* at Spring Meeting of the MD-DC-VA section of the MAA, Hood College and Frederick Community College, Frederick, MD, April 12–13, 2019.
- *Calculus readiness* at the Joint Mathematics Meetings, Baltimore, MD, January 16–19, 2019.
- *Calculus readiness* at Fall Meeting of the MD-DC-VA section of the MAA, University of Mary Washington, Fredericksburg, VA, November 2–3, 2018.
- *Curve neighborhoods of the odd symplectic Grassmannian* at Fall Meeting of the MD-DC-VA section of the MAA, Christopher Newport University, Newport News, VA, November 17–18, 2017.

## Courses Taught

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### Foundational and Lower-Division Mathematics

- Salisbury University: MATH 105 Liberal Arts Mathematics; MATH 140 Algebra and Trigonometry; MATH 201 Differential Calculus; MATH 202 Integral Calculus with Sequences and Series; MATH 310 Multivariable Calculus.
- Virginia Tech: MATH 1225 Engineering Differential Calculus; MATH 1226 Engineering Integral Calculus with Sequences and Series; MATH 2204 Engineering Multivariable Calculus; MATH 2015 Differential Calculus for Biological Sciences; MATH 2016 Integral/Multivariable Calculus for Biological Sciences.
- Hagerstown Community College: MATH 099 and 100 Developmental College Algebra.

### Upper-Division Pure Mathematics

- Salisbury University: MATH 441 Abstract Algebra 1; MATH 442 Abstract Algebra 2; MATH 451 Analysis 1; MATH 452 Analysis 2; MATH 406 Geometric Structures; MATH 490 Special Topics: Undergraduate Algebraic Geometry; MATH 385 Independent Study: Topology.

### Applied and Computational Mathematics

- Salisbury University: MATH 471 Numerical Methods (Python); MATH 472 Numerical Linear Algebra (Python).

### Discrete Mathematics, Data, and Quantum Computing

- Salisbury University: MATH 210 Discrete Mathematics; MATH 490 Special Topics: Combinatorics; MATH 306 Linear Algebra; MATH 385 Independent Study: Sports Analytics; MATH 490 Special Topics: Introduction to Quantum Computing.

### Undergraduate Research and Honors

- Salisbury University: MATH 390 Undergraduate Research: Schubert Calculus (numerous times); COSC 390 Undergraduate Research: Programming in Schubert Calculus; HONR 495 Honors Thesis.

## Honors and Nominations

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- Nominated for the University System of Maryland Board of Regents' Faculty Award for Mentoring in 2023.
- Nominated for the Salisbury University Student Research Conference (SUSRC) Outstanding Research Mentor Award in 2018, 2019, and 2026.
- Section NEXt Fellow for the MD-DC-VA Section of the MAA in 2017.

## Athletics — Cross Country and Track & Field

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- 2009 – 2011 ➤ **Salisbury University** (NCAA Division III). Varsity letter winner. Inducted into Chi Alpha Sigma, the national honor society for college student-athletes, recognizing varsity athletes for academic excellence.
- 2007 – 2009 ➤ **Hagerstown Community College** (NJCAA Division I). Awarded an athletic scholarship.
- 2005 & 2006 ➤ **Clear Spring High School**, Maryland. Two-time Maryland 1A State Champion in cross country (back-to-back team titles). Varsity letter winner.