

Ryan Shifler, Ph.D.

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Academic Appointments

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

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

Serve as the chair-level administrator for programs housed in the Dean's Office, directly supervising and evaluating faculty. Lead an 80-student interdisciplinary degree program and carried a new B.S. in Forensic Science through state approval. Lead the school's use of institutional data, including cohort outcome analyses, placement studies, and curriculum mapping across every Henson School major, work that drove a university-wide change in Calculus I placement.

Administrative Head, Urban and Regional Planning Program (chair-equivalent), 2022 – Present.

- Led the program through its transition from the Department of Geography and Geosciences to the Dean's Office, serving as the faculty's direct supervisor, conducting annual evaluations, and handling personnel matters.
- Rebuilt the program's administrative and curricular infrastructure outside a departmental structure, providing the chair-level review, advocacy, and approval support that its curriculum proposals would otherwise receive from a home department.
- Navigate shared courses, scheduling, and curriculum changes with the program's former department and other academic units, sustaining the working relationships a stand-alone program depends on.

Director, Integrated Science Program (chair-equivalent for the degree program).

- Lead an interdisciplinary B.S. program serving 80 students across 2 concentrations (75 in Forensic Science, 5 in an individually designed track), advising on degree pathways and clearing barriers to on-time completion.
- Recruit and coordinate faculty from across the Henson School's departments to supervise senior capstone projects, securing faculty mentors for every senior capstone.
- 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.

Academic Administrative Experience (continued)

Co-Coordinator, Forensic Science Concentration; Lead, Forensic Science Degree Development.

- Led a cross-departmental faculty steering committee of 5 faculty from the Departments of Chemistry and Biochemistry and Biological Sciences, coordinating their work and building consensus to design the **new B.S. in Forensic Science**.
- Authored the proposal that secured USM and Maryland Higher Education Commission (MHEC) approval for the degree, translating the committee's curriculum into the documents required for state review.
- Co-coordinate the concentration that incubated the new degree, and am guiding 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 75 forensic science students access to 7 specialized courses unavailable at Salisbury University.

Data Analytics for Institutional Decision-Making.

- Conducted longitudinal cohort analyses of institutional student-record data, tracking DFW (drop, fail, withdraw) rates, completion, major-switching, and enrollment patterns of first-time students across multiple years; findings informed advising, scheduling, and curriculum decisions.
- Led a predictive-validity study of mathematics and chemistry placement instruments across 1,000+ students, conducting cut-score analyses that compared course outcomes across alternative placement thresholds and evaluating the classification accuracy of each measure.
- Translated the analysis into an evidence-based policy recommendation that moved Salisbury University to high-school-transcript-based Calculus I placement, an institution-wide change now affecting 200 incoming students each year.
- Built a school-wide curriculum map of major courses across every Henson School program, classifying each course as required, elective, or restricted-choice and analyzing offering frequency, presented as a visual cross-major matrix.
- Performed data cleaning, analysis, and visualization in Excel, communicating results to faculty and administrators.

NASA Wallops Flight Facility Summer Internship, 2022 – Present.

- Help facilitate a summer internship placing Salisbury University students at NASA's Wallops Flight Facility, working directly with NASA staff to sustain the partnership.
- Travel to the facility each summer for students' end-of-summer research presentations.

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.

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

Academic Administrative Experience (continued)

- 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

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 – Present.
- 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

External Reviewer

- Invited to serve as external reviewer, promotion to Associate Professor with tenure, [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.
- Communications in Mathematical Physics, Journal of Algebraic Combinatorics, Communications in Algebra, Mathematics Magazine.

Publications

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**).
- *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 56 (3), 621–637, 2026 (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**).

Publications (continued)

- *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).

Educational and Pedagogical Scholarship

- *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 | ➤ Stephen Barr (2026), Caleb Shank (2025), Stephanie Warman (2021), Laurie Short (2021), and Garrett Fowler (2019). |
| University Honors | ➤ Connor Bean (2024), Stephanie Warman (2021). |
| External Awards | ➤ Stephen Barr won the first-place Student Poster Award, MD-DC-VA Sectional Meeting of the MAA, Spring 2026. |
| | ➤ Garrett Fowler won the second-place Student Talk Award, MD-DC-VA Sectional Meeting of the MAA, Spring 2019. |
| | ➤ Lela Bones and Garrett Fowler 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).
- \$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

- \$6,092 — Henson Travel Awards and other funding (8 awards, 2018–2026).

Presentations

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

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.

Courses Taught (continued)

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

- 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. |