

CONTACT INFORMATION	Purdue University Northwest Department of Chemistry & Physics 1401 S. US-421 Westville, IN 46391 USA	<i>Work:</i> +1-219-785-5659 <i>Fax:</i> +1-219-785-5572 <i>E-mail:</i> arwarren@pnw.edu <i>Web:</i> faculty.pnw.edu/aaron-warren
EDUCATION	Rutgers, The State University of New Jersey Ph.D., Physics • Advisor: Alan Van Heuvelen	May 2006
	Vassar College B.A., Astronomy, Mathematics, Physics (triple major) • <i>Magna Cum Laude</i> with departmental honors in each of Astronomy, Mathematics, and Physics • Thesis Advisors: Debra M. Elmeegreen (Astronomy), John McCleary (Mathematics), James C. Lombardi, Jr. (Physics)	June 2000
ACADEMIC APPOINTMENTS	Associate Professor of Physics , Purdue Northwest Department of Chemistry & Physics	July 2016 to present
	Associate Professor of Physics , Purdue North Central Department of Mathematics, Physics, & Statistics	July 2011 to July 2016
	Assistant Professor of Physics , Purdue North Central Department of Mathematics, Physics, & Statistics	August 2006 to July 2011
AWARDS	Purdue Northwest • Teaching Incentive Program (TIP) Award, 2018	
	Purdue North Central • Club Advisor of the Year (Astronomy), 2012 • Outstanding Faculty Teaching Award, 2009	
	Rutgers University • Outstanding Graduate Student Teaching Award, Rutgers University, 2006 • GAANN Fellowship (Graduate Assistance in Areas of National Need), US Dept. of Education, 2003–2004 • Richard E. Plano Outstanding Teaching Assistant Award, 2003 • Rutgers University Graduate Excellence Fellowship, 2000–2002	
	National Science Foundation • Graduate Research Fellowship Honorable Mention (High-Energy Theory), 2000	
	The Barry M. Goldwater Foundation (US Congress) • 1999 Goldwater Scholar	
	Vassar College • Phi Beta Kappa, 2000 • Lucy Kellogg English Physics Award (Outstanding Physics Thesis), 2000	

- Mary Evelyn Wells & Gertrude Smith Mathematics Prize (Outstanding Mathematics Thesis), 2000
- Ethel Hickox Pollard Memorial Physics Award (Outstanding Physics Major), 1999

Boy Scouts of America

- Eagle Scout Award, 1996

LICENSES AND CERTIFICATES

Purdue University, Collaborative Institutional Training Initiative (CITI) Human Subjects Course (Social Behavioral Research)

PROFESSIONAL MEMBERSHIPS

American Physical Society (APS), Member, 1998–present

American Mathematical Society (AMS), Member, 1999–present

American Association of Physics Teachers (AAPT), Member, 2003–present

- Physics Education Research Topical Group (2003–present)
- Indiana Section (2012–present)

RESEARCH INTERESTS

Physics Education Research

- Evaluation strategies and their use by students
- Bayesian learning & epistemic cognition
- Statistical reasoning
- Applied network theory

Numerical Relativity

- Properties of binary neutron star (BNS) mergers with high mass ratios and magnetizations
- Generalized models of dynamical mass ejecta and electromagnetic counterparts to BNS mergers

High Energy Theory

- D-brane properties and interactions
- Applications of generalized cohomology theories, especially topological K-theory

- [1] Karelina, A., Etkina, E., Bohacek, P., Vonk, M., Kagan, M., Warren, A., Brookes, D. *European Journal of Physics* 43(045701), July 2022.
Impact Factor: 0.883
doi:10.1088/1361-6404/ac683f
- [2] Warren, A.R. Impact of Bayesian Updating Activities on Student Epistemologies. *Physical Review - PER*, 16(010101), January 2020.
Impact Factor: 1.811
doi:10.1103/PhysRevPhysEducRes.16.010101
- [3] Warren, A.R. Quantitative Critical Thinking: Student Activities Using Bayesian Updating. *American Journal of Physics*, 86(5):368–380, May 2018.
Impact Factor: 1.069; Acceptance Rate: 11%
doi:10.1119/1.5012750
- [4] Warren, A.R. The K-Theoretic Formulation of D-Brane Aharonov-Bohm Phases. *Advances in High Energy Physics*, 2012 (Article 920486):1-10, November 2012.
Impact Factor: 2.050; Acceptance Rate: 44%
doi:10.1155/2012/920486
- [5] Kuhn, J., Warren, A.R., Maletta, D., and Branford, A. Local Grade Inflation and Local Proportion of Withdrawals. *Research in Higher Education Journal*, 15:66–98, December 2011.
Impact Factor: Unavailable; Acceptance Rate: < 25%
<http://www.aabri.com/manuscripts/11952.pdf>
- [6] Warren, A.R. Impact of Teaching Students to Use Evaluation Strategies, *Physical Review Special Topics - Physics Education Research*, 6(010203):1-12, July 2010.
doi:10.1103/PhysRevSTPER.6.020103
- [7] Warren, A.R. Evaluation Strategies: Teaching Students to Assess Consistency. *The Physics Teacher*, 47(7):466-469, July 2009.
doi:10.1119/1.3225513
- [8] Etkina, E., Van Heuvelen, A., White-Brahmia, S., Brookes, D.T., Gentile, M., Murthy, S., Rosengrant, D., and Warren, A.R. Scientific Abilities and Their Assessment. *Physical Review Special Topics - Physics Education Research*, 2(020103):1–15, August 2006.
doi:10.1103/PhysRevSTPER.2.020103
- [9] Etkina, E., Warren, A.R., and Gentile, M. The Role of Models in Physics Instruction. *The Physics Teacher*, 44(1):34–39, January 2006.
doi:10.1119/1.2150757
- [10] Lombardi Jr, J.C., Warren, J.S., Rasio, F.R., Sills, A., and Warren, A.R. Stellar Collisions and the Interior Structure of Blue Stragglers *The Astrophysical Journal*, 568:939–953, April 2002.
doi:10.1086/339060
- [11] Sills, A., Faber, J.A., Lombardi Jr, J.C., Rasio, F.A., and Warren, A.R. Evolution of Stellar Collision Products in Globular Clusters II: Off-Axis Collisions *The Astrophysical Journal*, 548:323–334, February 2001.
doi:10.1086/318689

- [12] Elmegreen, D.M., Chromey, F.R., and Warren, A.R. Discovery of a Double Circumnuclear Ring and Minibar in the Starburst Galaxy M83 *The Astronomical Journal*, 116:2834–2840, December 1998.
doi:10.1086/300657

**REFEREED
CONFERENCE
PUBLICATIONS**

- [1] Warren, A.R. Time-Series Analysis: Assessing the Effects of Multiple Educational Interventions in a Small Enrollment Course. In: *Proceedings of the 2009 Physics Education Research Conference*, AIP Conference Proceedings 1179(1):293-296, November 2009.
doi:10.1063/1.3266740
- [2] Warren, A.R. Network Analysis of Social Interactions in Laboratories. In: *Proceedings of the 2008 Physics Education Research Conference*, AIP Conference Proceedings 1064(1):219-222, October 2008.
doi:10.1063/1.3021259
- [3] Warren, A.R. The Role of Evaluative Abilities in Physics Learning. In: *Proceedings of the 2004 Physics Education Research Conference*, AIP Conference Proceedings 790(1):145–148, September 2004.
doi:10.1063/1.2084722

**SUPERVISED
PUBLICATIONS**

- [1] Murray, A.R. *Binary Neutron Star Mergers: Testing Ejecta Models for High Mass-Ratios*. Journal of Purdue Undergraduate Research, Vol. 10, 2020.

**OTHER
PUBLICATIONS**

- [1] Warren, A.R. *Evaluation Strategies as a Means for Learning Physics*. Ph.D. Thesis, Rutgers University, Piscataway, NJ, 2006.
- [2] Warren, A.R. *Post-Newtonian Smoothed Particle Hydrodynamic (SPH) Simulations of Binary Neutron Star Coalescence*. B.A. Thesis in Astronomy & Physics, Vassar College, Poughkeepsie, NY, 2000.
- [3] Warren, A.R. *Dualities in Yang-Mills Theories* B.A. Thesis in Mathematics, Vassar College, Poughkeepsie, NY, 2000.
- [4] Warren, A.R. *Collisions of Main Sequence Stars*. Proceedings of the 1999 Undergraduate Research Symposium on Research in Astronomy, Keck Northwest Astronomy Consortium, 110-113, 1999.
- [5] Warren, A.R. *Discovery of a Double Circumnuclear Dust Ring and Dust Mini-Bar*. Proceedings of the 1998 Undergraduate Research Symposium on Research in Astronomy, Keck Northwest Astronomy Consortium, 112-115, 1998.

**INVITED &
JURIED
PRESENTATIONS**

- [1] Warren, A.R. Ripples in Spacetime: Relativistic Simulations of Black Hole, Neutron Star, and White Dwarf Mergers. *Valparaiso University Astronomy Lecture Series*, Valparaiso, IN, April 6, 2018.
- [2] Warren, A.R. The Triumphs of Sisyphus: Relativity, Quantum Theory, and Particle Physics. *PNW Sinai Forum Faculty Fellow Presentation*, Westville, IN, November 16, 2017.

- [3] Warren, A.R. and Pratt, D. Lights, Camera, Action! How Teacher-Created 3-Act Videos Can Impact Teachers and Students. *2017 National STEM Education Research & Practice Summit*, West Lafayette, IN, October 16–17, 2017.
- [4] Warren, A.R. Calculating Infinity: Numerical Models of Gravitational Wave Production via Neutron Star and Black Hole Mergers. *Keynote Address: 2016 Purdue North Central Undergraduate Research Day*, Westville, IN, March 30, 2016.
- [5] Warren, A.R., Hamann, A., Munoz, D., Ward, R., and Mecklenburg, V. MASTERING Videos 2016 Hoosier Association of Science Teachers, Inc. (HASTI) Meeting, Indianapolis, IN, February 3, 2016.
- [6] Warren, A.R. Quantitative Small-N Methodologies. In: *Ohio State Physics Education Seminar Series*, Columbus, OH, January 26, 2010.
- [7] Warren, A.R. Evaluation as a Means for Learning Physics. In: *Ohio State Physics Education Seminar Series*, Columbus, OH, November 14, 2005.
- [8] Warren, A.R. Evaluative Strategies for Independent Learning. In: *Rutgers University Seminars in Instructional Physics*, Piscataway, NJ, November 2, 2004.

**CONTRIBUTED
CONFERENCE
TALKS**

- [1] Warren, A.R. Numerical Relativity: Studying Binary Neutron Star Mergers. *2018 Purdue Northwest Days of Discovery*, Westville, IN, April 3, 2018.
- [2] Warren, A.R. Dancing with the (dead) stars: Simulations of Neutron Star Mergers. *Purdue North Central Faculty Research Seminar Series*, Westville, IN, April 10, 2015.
- [3] Warren, A.R. Developing Transferable Scientific Abilities: Hypothetico-Deductive Reasoning. *2013 Meeting of the Indiana American Association of Physics Teachers*, Indianapolis, IN, April 20, 2013.
- [4] Myers, J., Hallett, R., Mei, Y., Michna, M., and Warren, A.R. Examining the Mass Ratio Dependence of Post-Newtonian Smoothed Particle Hydrodynamics (SPH) Simulations of Binary Neutron Star Coalescence. *24th Butler Undergraduate Research Conference*, Indianapolis, IN, April 6, 2012.
- [5] Warren, A.R., Van Heuvelen, A. Student Self-Evaluation and its Effects: Self-Efficacy, Motivation & Problem-Solving. In: *131st National Meeting of the American Association of Physics Teachers*, Salt Lake City, UT, August 6–10, 2005.
- [6] Warren, A.R., Van Heuvelen, A. The Role of Evaluative Abilities in Student Learning & Performance. In: *129th National Meeting of the American Association of Physics Teachers*, Sacramento, CA, July 31–August 4, 2004.
- [7] Warren, A.R., Gentile, M., Van Heuvelen, A. Developing Scientific Evaluation Abilities in Students. In: *129th National Meeting of the American Association of Physics Teachers*, Sacramento, CA, July 31–August 4, 2004.
- [8] Warren, A.R., McCleary, J. Notions of Duality in Mathematics and Physics. In: *Hudson River Undergraduate Mathematics Conference VII*, Poughkeepsie, NY, April 13, 2000.

- [9] Warren, A.R., Lombardi, J.C. Collisions of Main Sequence Stars In: *1999 Undergraduate Symposium on Research in Astronomy, Keck Northeast Astronomy Consortium*, Wesleyan University, CT September 24, 1999.
- [10] Warren, A.R., Elmegreen, D.M., Chromey, F.R. High Resolution Near Infrared Imaging of the Nucleus of M83. In: *1998 Undergraduate Symposium on Research in Astronomy, Keck Northeast Astronomy Consortium*, Vassar College, NY September 25, 1998.

**OTHER
SCHOLARLY
TALKS**

- [1] Warren, A.R. Relativistic Simulations of Black Hole & Neutron Star Mergers. *Calumet Astronomical Society Meeting*, Saint John, IN, June 25, 2018.
- [2] Warren, A.R. Modern String Theory & ER=EPR. *PNW QuarkNet Summer Workshop Presentation*, Hammond, IN, June 22, 2018.
- [3] Warren, A.R. Chaos Theory & Emergence. *PNW QuarkNet Summer Workshop Presentation*, Hammond, IN, June 22, 2018.
- [4] Warren, A.R. Gravitational Wave Detections. *PNW QuarkNet MasterClass*, Hammond, IN, April 7, 2018.
- [5] Warren, A.R. Quantum Field Theory and the Standard Model. *PNW QuarkNet Summer Workshop Presentation*, Westville, IN, June 19, 2017.
- [6] Warren, A.R., Modern String Theory: Black Holes, Holography, and Emergent Spacetime. *Purdue North Central Physics Club Colloquium*, Westville, IN, November 17, 2015.
- [7] Warren, A.R., Learning to Learn. *Purdue North Central Faculty Workshop*, Westville, IN, January 5, 2012.
- [8] Warren, A.R., Quantum Fields and String Theory: An Overview. In: *Purdue North Central Astronomy Club Colloquium*, Westville, IN, April 5, 2011.

**CONFERENCE
POSTER
PRESENTATIONS**

- [1] Warren, A.R. Using Bayesian Updating to Shift Epistemic Beliefs *2018 Physics Education Research Conference*, Washington, D.C., August 2, 2018.
- [2] Murray, A.R., Warren, A.R. Dynamical Ejecta Mass and Gravitational Wave Emission from High Mass-Ratio Binary Neutron Star Mergers. *30th Butler Undergraduate Research Conference*, Indianapolis, IN, April 13, 2018.
- [3] Murray, A.R., Warren, A.R. Visualizations of Magnetized Binary Neutron Star Mergers with Extreme Mass-Ratios. *2018 Purdue Northwest Days of Discovery*, Westville & Hammond, IN, April 3–4, 2018.
- [4] Warren, A.R. Quantitative Critical Thinking: Student Activities Using Bayesian Updating. *2017 Physics Education Research Conference*, Cincinnati, OH, July 26–27, 2017.
- [5] Warren, A.R. Quantitative Critical Thinking: Student Activities Using Bayesian Updating. *2017 Purdue Northwest Days of Discovery*, Hammond, IN, March 23, 2017.
- [6] Warren, A.R. Modeling Neutron Star Mergers: Results of Fully Relativistic Simulations. *2017 Purdue Northwest Days of Discovery*, Hammond, IN, March 23, 2017.

- [7] Warren, A.R. Developing Student Epistemic Awareness via Bayesian Learning Activities. *2015 Physics Education Research Conference*, College Park, MD, July 29-30, 2015.
- [8] Scaife, T.M., Warren, A.R., Heckler, A.F. Modeling the Changes in Student Understanding. *2011 Wisconsin Association of Physics Teachers Conference*, Stevens Point, WI, October 28–29, 2011.
- [9] Scaife, T.M., Warren, A.R., Heckler, A.F. Modeling the Changes in Student Understanding. *The 5th Annual Best Practices in Science, Math, and Engineering Teaching Conference*, Stevens Point, WI, September 25, 2011.
- [10] Warren, A.R., Scaife, T.M., Heckler, A.F. Quantitative Modeling of Changes in Student Understanding. *2011 Physics Education Research Conference*, Omaha, NE, August 3–4, 2011.
- [11] Warren, A.R. Time-Series Analysis: Detecting & Measuring Structural Changes in Knowledge. In: *2009 Physics Education Research Conference*, Ann Arbor, MI, July 29–30, 2009.
- [12] Warren, A.R. Network Analysis of Social Interactions in Laboratories. In: *2009 Physics Education Research Conference*, Edmonton, Canada, July 23–24, 2008.
- [13] Warren, A.R., Van Heuvelen, A. Student Self-Evaluation and Problem-Solving Performance. In: *2005 Physics Education Research Conference*, Salt Lake City, UT, August 10, 2005.
- [14] Warren, A.R., Van Heuvelen, A. Student Self-Evaluation, Problem Solving, Self-Efficacy, & Motivation. In: *131st National Meeting of the American Association of Physics Teachers*, Salt Lake City, UT, August 6–10, 2005.
- [15] Warren, A.R., Gentile, M., Van Heuvelen, A. Examples of Students Developing Evaluative Abilities. In: *129th National Meeting of the American Association of Physics Teachers*, Sacramento, CA, July 31–August 4, 2004.
- [16] Warren, A.R., Van Heuvelen, A. The Role of Evaluative Abilities in Student Learning & Performance. In: *129th National Meeting of the American Association of Physics Teachers*, Sacramento, CA, July 31–August 4, 2004.
- [17] Gentile, M., Warren, A.R., Etkina, E., Van Heuvelen, A. Developing & Measuring Students' Ability to Model Physical Phenomena. In: *129th National Meeting of the American Association of Physics Teachers*, Sacramento, CA, July 31–August 4, 2004.
- [18] Warren, A.R., Van Heuvelen, A. Enhancing Scientific Evaluation and Judgment Among Physics Students In: *127th National Meeting of the American Association of Physics Teachers*, Madison, WI, August 2–6, 2003.

**GRANTS
AWARDED**

- [1] Senior Personnel, “Learning physics by practicing it with physical apparatus or using interactive video: Is there a difference?”
NSF IUSE, \$597,781, 2017 – 2020
PI: David Brookes (Cal. State - Chico)

<https://app.pivotinteractives.com/libraries/pivot-interactives?sort=name&tag%5B0%5D=vISLE>

- [2] Co-Principal Investigator, “Conceptual Algebra Readiness with Engineering & Science (CARES)”
Indiana Dept. of Education MSP, \$401,000, May 1, 2016 to April 30, 2018
PI: David Feikes (Professor of Mathematics), co-PI: Jan Radford (Michigan City Area Schools)
<https://www.caremath.com/>
- [3] Co-Principal Investigator, “MASTERING Videos”
Indiana Dept. of Education MSP, \$447,889, May 1, 2014 to April 30, 2016
PI: David Feikes (Professor of Mathematics), co-PI: Jan Radford (Michigan City Area Schools)
<http://masteringvideosgrant.com/>
- [4] Principal Investigator, “Expanding S4L: Science for Life-Long Learning & Leading”,
Indiana Science Initiative, \$10,000, May 1, 2008 to April 30, 2010.
co-PI: Rosa Rivera-Hainaj
- [5] Co-Principal Investigator, “S4L: Science for Life-Long Learning & Leading”, IN Dept.
of Educ. MSP, \$323,973, May 1, 2008 to April 30, 2010.
co-PI: Rosa Rivera-Hainaj, Jane Larson
- [6] Principal Investigator, “Stochastic Modeling of Student Learning”, Purdue Research
Foundation Summer Grant, \$8,000, May 15, 2009 to August 1, 2009.

**INTERNAL GRANT
AWARDS**

- [1] Principal Investigator, “Mass Ejecta, Gravitational, and Electromagnetic Characteristics of Magnetized, High-Mass Ratio Binary Neutron Star Mergers”, PNW COES Summer Faculty Research Grant, \$10,000, July 1, 2018 to July 31, 2018.
- [2] Principal Investigator, “Gravitational Wave Emission from High Mass-Ratio Binary Neutron Star Mergers”, PNW Science Interdisciplinary Research Center, \$1,700, January 1, 2018 to December 31, 2018.
- [3] Consultant, “Little School, Big Impact? Evaluating a University-School Partnership Model for Early Learning”, PNW Catalyst Grant, \$11,960, January 1, 2017 to December 31, 2017.
PIs: Mary Jane Eisenhower (Assoc. Prof. of Educ.) & David Pratt (Assoc. Prof. of Educ.)
- [4] Principle Investigator, “Science as a Scientist: Creating and Evaluating Models”, PNC VCAA Instructional Improvement Grant, \$2250, January 1, 2016 to June 30, 2016.
- [5] Co-Principal Investigator, “Honors Writing for STEM: Catalyzing growth in scientific literacy and STEM student research”, PNW Collaborative Research Development Grant, \$20,000, July 1, 2015 to June 30, 2016.
PI: Vanessa Quinn, co-PI: Heather Fielding, Karen Bishop-Morris, John Rowan
- [6] Principle Investigator, “A Bayesian Approach to Enhancing and Quantifying Critical Thinking”, PNC VCAA Instructional Improvement Grant, \$2250, January 1, 2015 to June 30, 2015.

[7] Principle Investigator, “Enhancing Students’ Scientific Reasoning Abilities”, PNC VCAA Instructional Improvement Grant, \$2250, January 1, 2014 to June 30, 2014.

**PROJECTS
MANAGED**

[1] Campus Coordinator (2011–2013), “Louis Stokes Alliance for Minority Participation Indiana”
NSF LSAMP, \$3,040,194, May 1, 2007 to April 30, 2013
(PNC Campus Budget \$75,000)
PI: Timothy Sands (Purdue WL)

**OUTREACH &
COMMUNITY
SERVICE**

Gabis Arboretum Perseid Meteor Shower Viewing (2018)

Together with Dr. Jessica Warren, organized and conducted public viewing at Gabis Arboretum of the Perseid meteor shower. This aided recruitment by raising the general public profile of PNW.

PNC/PNW Summer STEAM Camp Presenter (2011, 2013, 2014, 2015, 2017, 2018)

Conducted 4 two-hour sessions each year for students aged 6-13 as part of the STEAM Summer Camp program at PNC/PNW, organized by Elizabeth Bernel and Judy Jacobi. These camps aided recruitment by familiarizing children with the campus and faculty.

Porter County Academic Super Bowl Science Question Reader (2011 – 2012, 2014 – 2018)

Read the questions and answers for the science round of the competition, which involves \approx 250 high school students from Porter County high schools. These events aided recruitment by bringing top-tier students onto campus, providing an opportunity to see and meet several administrators and faculty members during the course of the competitions.

PNW Regional Science Olympiad Judge (2017, 2018)

Created, administered, and scored test for Fermi Questions event in 2018 and for the Hovercraft event in 2017. These events aided recruitment by bringing top-tier students onto campus and enabling them to meet administrators and faculty members.

Mentor, Westville High School Olympiad Team (2017 – 2018)

Visited for three 2-hour sessions to help students prepare for Thermodynamics and Optics events. Answered additional questions via email. This aided recruitment by enabling students to directly interact with a PNW faculty member.

Dean of Students Night Sky Viewing Party (2017)

Organized (together with the Dean of Students Office) a Night Sky Viewing and Pizza Party on Sept. 27th. Roughly 20 students participated. This aided in retention by providing current PNW students a greater opportunity to develop a sense of community with peers, staff, and faculty.

Total Solar Eclipse Viewing Event (2017)

Together with Dr. Jessica Warren, organized a public viewing of the 2017 Total Solar Eclipse (Aug. 21) and distributed roughly 100 solar eclipse viewing glasses. Several hundred people participated, and many emailed additional astronomy-related questions before and after the event. This aided in recruitment and retention by providing a memorable experience on-campus, whereby participants could gain increased familiarity with the campus, faculty, and students.

PNW QuarkNet Coordinator (2017)

Worked with Dr. Neeti Parashar (Professor of Physics) to meet with and recruit Porter County high school teachers to participate in the 2017 PNW QuarkNet Workshop. This

program aided recruitment, as students in participating classes are able to interact with PNW faculty and learn about research opportunities at PNW.

United Way Campaign Captain (2017)

Assisted with planning and execution of fund-raising events across PNW. This aided in boosting the general impact and profile of PNW on the regional community, which indirectly benefits recruitment and support for PNW.

Knapp Elementary School Guest Lecturer (2017)

Invited to lecture to the 6th-grade class, hosted by Mr. Michael Maesch (Michigan City Area Schools). Conducted a 1-hour session on astronomy and advertised PNW research activities and curricular opportunities at PNW. This aided recruitment by giving students a chance to meet and interact with a PNW faculty member.

Purdue Calumet/Purdue Northwest High School Achievement Exam Writer (2016, 2017)

Wrote problems and answers for the physics exam. Organized by Dr. Hal Pinnick (Professor of Chemistry). This event aided student recruitment.

Critchfield Elementary School Guest Lecturer (2013, 2016, 2017)

Invited to lecture to the 4th-grade class, hosted by Mr. Martin Briggs (LaPorte Community School Corporation). Presented astronomy overview lectures to ≈ 50 students on each occasion. Answered student follow-up questions via email. This aided recruitment by giving students a chance to meet and interact with a PNW faculty member.

Valpo Girls STEAM Camp Presenter (2016)

Led one-hour workshop for ≈ 25 girls in grades 6-7 on coding in Python. Organized by Mrs. Erin Hawkins (Valparaiso Public Schools) and Dr. Lindsay Gielda (Assistant Professor of Biology). This event aided recruitment by giving students a chance to meet and interact with PNW faculty members and the campus.

Delta Sigma Science Fair Judge (2015, 2016)

Served as judge for PNC club-run science fair for regional students grades 3-7. Organized by Leslie Plesac & Susan Brychell. This fair garnered media attention, and aided recruitment by familiarizing regional children with the campus and faculty.

Barker Middle School STEM Job Shadowing (2016)

Invited to serve as host for three 8th-grade students by Mrs. Amy Hamann (Michigan City Area Schools). Hosted three students and provided job shadowing experience for 4 hours as they wanted to see what it was like to be a science professor, then met with their parents to discuss opportunities at PNW. This aided recruitment by giving students a chance to meet and interact with a PNW faculty member and to learn about research opportunities.

National Chemistry Week Presenter (2015)

Organized by Dr. Jessica Thomas and Mrs. Amy Hamann (Michigan City Area Schools). Gave 30-minute presentation on PNC's sundial to ≈ 70 students from Barker Middle School. This aided recruitment by familiarizing students with the campus and faculty.

PNC Books & Coffee Presenter (2014 & 2015)

Organized by Dr. Kenneth Kincaid (Associate Professor of History). Presented 1-hour talk summarizing the book *Sync* by Steven Strogatz in 2015. Presented 1-hour talk summarizing the book *The Grand Design*, by Stephen Hawking & Leonard Mlodinow in 2014. This aided retention by contributing to on-campus culture,

Lake Hills STEM Magnet School Astronomy Club (2011–2015)

Invited by Mrs. Shelley Deutscher to meet with group of ≈ 20 students every other week for 2 months during each spring. Each meeting included a brief presentation on an astronomical topic, a Q&A period, and hands-on activities involving telescopes, spectroscopes, and other instruments or simulations. This aided recruitment by engaging students with a PNW faculty member and Astronomy Club students.

Knapp Elementary Gifted & Talented Field Trip (2015)

Requested by Mrs. Megan Boyter to host and present a lecture to the ≈ 70 students from the GT programs in Michigan City. Coordinated their visit to the PNC campus, and also provided a 1-hour interactive presentation on astronomy. Maintained email contact with teachers to answer follow-up questions over the following month. This aided recruitment by familiarizing students with a PNW faculty member and the campus.

Science Café Presentation (2013)

Invited to present 1-hour talk entitled “Living on the Edge: The Current Limits of Astronomy” at the First Unitarian Church in Hobart, IN. This aided recruitment by familiarizing roughly 50 attendees with a PNC faculty member and activities done on campus.

High School Student Mentor (Christopher Perry, Portage HS, 2013 – 2014)

Chris had exhausted all math course offerings at his high school, and his teacher setup a system whereby Chris and I met (in-person or virtually) roughly once per week. I provided Chris with books, lectures, homework assignments, and feedback relating to differential equations and advanced classical mechanics. Chris later enrolled at PUC/PNW.

Lake Hills Elementary Field Trip (2012)

Organized and hosted a field trip at Westville for ≈ 60 students from classes of Mrs. Janis Mitchell, Deanna Munoz, and Leanne Lamport. The visit included a presentation on astronomy and a night-sky viewing session. This aided recruitment by familiarizing children with a PNW faculty member and the campus.

Camp New Happenings Presenter (2012)

Gave astronomy presentation and sky viewing for ≈ 15 children participating in a camp for children of incarcerated parents. Camp organized by David & Christina Nevill. This aided recruitment by familiarizing children with a PNW faculty member.

Hours For Ours (H4O) Mentor (2011)

Mentor for one 5th-grade student whose parents were incarcerated and who had expressed an interest in space sciences. Met monthly from February 2010 to December 2011 at Lake Hills Elementary in Michigan City, until mentee moved to LaPorte upon his mother’s release from prison. Provided counsel, information about careers, and took mentee on field trips to movies and restaurants as part of funded mentoring program activities.

CONSULTING

Pearson Publishing Served as paid consultant for multiple book reviews and ancillary on-line student resources. Work included learning-outcome mapping for end-of-chapter items and critiques of online interactive figures.

- *The Essential Cosmic Perspective*, 7th Ed (2013), 8th Ed (2016)
- *The Cosmic Perspective*, 6th Ed (2011), 7th Ed (2012), 8th Ed. (2015)
- *The Cosmic Perspective Fundamentals*, 2nd Ed (2014)
- *University Physics*, Young & Freedman, 13th Ed (2013)
- Interactive Figures Scripts (2013)

W.H. Freedman Publishing

Served as paid consultant for reviews of sample chapters and end-of-chapter items.

- *Discovering the Essential Universe*, 6th Ed (2014)
- *Discovering the Universe*, 10th Ed (2013)

Dekker Vacuum Technologies (2013)

Teamed with Dr. David Pratt (Associate Professor of Education) to create a series of instructional videos for use in four online courses developed for Dekker employees to better understand the physics of vacuums.

Indiana Math & Science Partnership Summer STEMstitute Presenter (2011)

Developed and presented Powerpoint and interactive materials as part of a 40-hour, one-week workshop for STEM instructors from grades 7-12 in Michigan City Area Schools.