

Skills

- Astronomy and physics education, public outreach, web design
- Blackboard, Canvas, DIRTY (Dust Radiative Transfer, Yeah!), C, HTML
- Adobe Photoshop, Illustrator, & Dreamweaver; Microsoft Office; Apple Numbers, Keynote
- Windows, Mac

Education

Ph.D. Astronomy , New Mexico State University (NMSU)	2010-2012
M.S. Astronomy , NMSU	2005-2010
non-degree physics, math courses, University of Pennsylvania	2003-2004
B.A. Physics , Syracuse University	1996-2000

Professional Experience

Lecturer, University of Toledo	Fa2013-current
Teaching introductory astronomy and general physics for non-majors, freshman orientation	
Adjunct Faculty, Doña Ana Community College	2012-13
Teaching introductory solar system astronomy class, including lab	
Research Assistant, NMSU	2005-12
Advisor Dr. Tom Harrison; modeled dust formation in novae, studied a neutron star binary jet; optical and infrared observer on Keck 8m (Hawaii), SOAR 4m (Chile), APO 3.5m (New Mexico), KPNO 2.1m (Arizona), & CTIO Yale 1m (Chile)	
Lab Instructor, Head Teaching Assistant, NMSU	2008-12
Taught labs for undergraduate astronomy classes; oversaw other astronomy teaching assistants	
Observatory Teaching Assistant, NMSU	2008-9
Oversaw target selection, telescope operation, scheduled volunteers at Tombaugh Observatory	
President, NMSU Astronomy Graduate Student Organization	2009
Served as the liaison between astronomy faculty and 30 graduate students	
Webmaster, NMSU Astronomy Graduate Student Organization	2008-12
Created website (astronomy.nmsu.edu/agso) as resource for maintaining institutional memory to help astronomy graduate students teach labs, acquire funding, and perform outreach	
Physics Lab Assistant, University of Pennsylvania	2003-4
Revised introductory physics lab manual, helped set up and run labs	
Web Designer & Photographer, Dynamic Digital Advertising	2001

Teaching Experience

- Teach classes ranging from 25 students to 170 students with enthusiasm; integrate education research; use Blackboard and Echo360 to record lectures, create homework and secure tests
 - “Survey of Astronomy” (ASTR 1010) **Fa/Sp2013-present**
 - “Physics with Calculus” (PHYS 2100) **Sp2020-present**
 - “Introduction to Physics” (PHYS 1750) **Fa2019**
 - “First Year Experience” (NSM 1000) **Fa2018-present**
 - “First Year Experience” (UC 1000) **Fa2017**
 - “General Physics I” (PHYS 2070) **Fa2013-16**

Service

- Run Physics & Astronomy TA training with Dr. Kathy Shan emphasizing teaching methods and student interaction **2017-current**
- Serve on the Natural Sciences and Math (NSM) Grievance Council **2017-current**
- Arrange meetings of lecturers within NSM **2015-current**
- Organize and run First Faculty Colloquium with Dr. Kristi Mock **2019-20**
- Participated in the UT Leadership Institute **2018-19**
- Participated in Early Start/Summer Scholars program **2017, 2018**
- Served on organizing committee for Toledo's hosting of the 2018 APS Conference for Undergraduate Women in Physics (CUWiP) **2017-18**
- Chair of the committee to celebrate the 50th Anniversary of the dedication of Ritter Astrophysical Research Consortium (RARC) **2017-18**

Outreach

- Presented "Careers in Astronomy" talk to audiences ranging from high school to college students in Ritter Planetarium and on main campus **2017-current**
- Presented talks (5 to 45 min) in conference, classroom, and outdoor settings for K-12 and amateur astronomy clubs **2005-12**
- Monthly star parties with Las Cruces Natural History Museum (attendance ≤ 60) **2005-12**
- Organized May 2012 annular solar eclipse event for Las Cruces; included running event committee, organizing volunteers, handling public relations (attendance $\sim 2,000$) **2011-12**
- Organized and ran the astronomy portion of NMSU STEM Outreach Center's Brain Battle (based on the Science Olympiad) **2010-11**
- Created black holes education site (gothosenterprises.com/black_holes) **1998**

Honors & Awards

- University of Toledo Outstanding Teaching Award **2017**
- University of Toledo Faculty February Shining Star Award **2014**
- NMSU ChAMPIONs **2013**
- AAS Astronomy Ambassador **2012**
- NASA Motivating Undergraduates in Science and Technology (MUST) Mentor **2011**
- Barry Neil Rappaport Scholarship **2009**
- Graduate Assistantship Award **2009**
- New Mexico Space Grant Graduate Research Fellowship **2008-9**
- NMSU Higher Education Department Grant **2008-9**

Memberships

- American Astronomical Society (AAS)
- American Association of Physics Teachers (AAPT)
- National Science Teachers Association (NSTA)
- Sigma Pi Sigma and Society of Physics Students (SPS)

Research Publications & Talks

- *Spitzer Observations of GX17+2: Confirmation of a Periodic Synchrotron Source*, Harrison, T. E.; McNamara, B. J.; **Bornak, J.**; Gelino, D. M.; Wachter, S.; Rupen, M. P.; Gelino, C. R., ApJ 736, 2011
- *Additional Spitzer IRS Spectroscopy of Three Intermediate Polars: The Detection of a Mid-Infrared Synchrotron Flare from V1223 Sagittarii*, Harrison, T. E.; **Bornak, J.**; Rupen, M., Howell; S. B.; ApJ 710, 2010

- *A Possible Period for the K-band Brightening Episodes of GX 17+2*, **Bornak, J.**, McNamara B. J., Harrison, T. E., Rupen, M. P., Bandyopadhyay, R. M., Wachter, S., ApJ Letters 701, 2009
- *Infrared Photometry and Spectroscopy of VY Aqr and EI Psc: Two Short-Period Cataclysmic Variables With Curious Secondary Stars*, Harrison, T. E., **Bornak, J.**, Howell, S. B., Mason, E., Szkody, P., McGurk, R., ApJ 137, 2009
- “Classical Novae Blow Smoke Rings: A DIRTY Approach to Modeling Dust Formation”, 5-minute talk at the 219th American Astronomical Meeting, Austin, TX, 2012
- “DIRTY Work: Modeling the Dust Formation and Evolution in Classical Novae”, 15-minute talk at the ESO Evolution of Compact Binaries, Vina del Mar, Chile, 2011, and 45-minute colloquium at the CTIO facility, La Serena, Chile, 2010