

# KRISTIN N. BAKER

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## CONTACT INFORMATION

Indiana University  
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## RESEARCH INTERESTS

Extragalactic astrophysics: galaxy evolution ; interstellar medium ; intergalactic medium ; chemical abundances ; the Epoch of Cosmic Reionization

## EDUCATION

**Ph.D. in Astronomy**, Indiana University Anticipated Aug. 2027  
Minor: Physics  
Advisor: Dr. John Salzer

**M.A. in Astronomy**, Indiana University 2025

**B.S. in Physics**, Georgia State University 2020  
*Summa Cum Laude*

## GRANTS AND FELLOWSHIPS

**Sullivan Research Fellowship** 2025-2026  
Astronomy Department, Indiana University, \$27,720

**Dissertation Fellowship** 2025-2026  
Indiana Space Grant Consortium, \$12,000

## HONORS & AWARDS

Executive Dean's Travel Award for Women in Science 2024  
Goethe Link Prize for Outreach and Public Education in Astronomy 2024  
Goethe Link Prize for Outreach and Public Education in Astronomy 2023  
Provost's Travel Award for Women in Science 2023  
Indiana University College of Art and Science Travel Award 2023  
Zell Miller Scholarship 2017-2020  
Georgia State University Admission Foundation Scholarship 2017-2018

## RESEARCH EXPERIENCE

**Research Assistant**, *Indiana University* 2024 - Present  
Advisor: Dr. John Salzer  
Study of the properties of Green Pea galaxies detected within the Star Formation Across Cosmic Time (SFACT) Survey. Follow-up abundance quality spectra obtained with HET 10m telescope to study the evolution of chemical abundances in GPs over the redshift range  $z = 0.31-0.51$ .

**SFACT Survey Team Member**, *Indiana University* 2022 - Present  
PI: Dr. John Salzer  
Emission-line galaxy survey utilizing the One Degree Imager and Hydra Multi-fiber positioner + Bench Spectrograph on the WIYN 3.5m telescope. Lead imaging observations and data reduction processes.  
Lead Observer : 5.5 nights, Supporting Observer : 38.5 nights

**Undergraduate Research Assistant**, *Georgia State University* 2019 - 2021  
Advisor: Dr. Jay Dunn  
Study of the variability in absorption features associated with outflowing material from central supermassive black hole in NGC 3783 as a way to characterize the physical changes in the gas over time.

## PUBLICATIONS

### Published:

Bentz, M., **Baker, K. N.**, Coumarbatch, K. et al., "V-Band Photometric Monitoring of 782 Montefiore," Minor Planet Bulletin, Vol 49, No. 4, 257

**Submitted:**

Kimsey-Miller, B. K., Salzer, J. J., **Baker, K. N.** et al., "The Environments of Star-Forming Galaxies Detected in the SFACT Survey : Do Mergers and Interactions Drive the Star Formation?," *submitted*

**In Preparation:**

**Baker, K. N.**, Salzer, J. J., Kimsey-Miller, B. K. et al., "Searching for Green Pea Galaxies in the SFACT Survey," *in preparation*

PRESENTATIONS

**Professional Talks:**

*Green Peas Across Cosmic Time: Selecting Green Pea Galaxies in the SFACT Galaxies.*

Tea Talk Series, Astronomy Department, Indiana University, March 2025

*Galaxy Dominoes: A New Tactile Tool for Teaching Astronomy.*

Tea Talk Series, Astronomy Department, Indiana University, October 2021

*The Study of Outflowing Material in NGC 3783.*

STEM Conference, Georgia State University, November 2020

**Conference Posters:**

*Pea Haw! Expanding the Frontier of Green Peas to  $z = 0.51$  in the SFACT Survey.*

American Astronomical Society #246, Anchorage, AK, June 2025

*The Many Faces of the Tactile Galaxy Cards.*

American Astronomical Society #241, Seattle, WA, January 2023

*Continuing Evolution of Outflows in NGC 3783.*

Conference for Undergraduate Women in Physics, Norman, OK, January 2020

*Continuing Evolution of Outflows in NGC 3783.*

Georgia Regional Astronomy Meeting, Atlanta, GA, October 2019

**Public Talks:**

*Pea Haw: Green Pea Galaxies and the Epoch of Reionization.*

Astronomy on Tap, Bloomington IN., November 2024

*Preparing for a Solar Eclipse.*

Astronomy on Tap, Bloomington IN., April 2024

*Preparing for a Solar Eclipse.*

Bloomington IN., February 2024

*Solar Eclipses.*

Brown County Public Libraries, Bloomington IN., November 2023

*Preparing for a Solar Eclipse.*

Indiana University Center for Rural Engagement Webinar Series, Bloomington IN., October 2023

CO-I OBSERVING  
PROGRAMS

**WIYN, 3.5m**

*New Extreme Emission-line Galaxies and Their Evolution*, PI: Dr. Samir Salim

Hydra Multi-fiber Positioner + Bench Spectrograph

1. Proposal 2025B-924437, 4 nights

2025

*Measuring Metallicities of High Redshift SFACT Galaxies*, PI: Dr. Katherine Rhode

Hydra Multi-fiber Positioner + Bench Spectrograph

1. Proposal 2025B-557428, 2 nights

2025

*SFACT: A Deep Narrow-Band Imaging Survey with WIYN*, PI: Dr. John Salzer

Hydra Multi-fiber Positioner + Bench Spectrograph, One Degree Imager

7. Proposal 2025B-460461, 10 nights	2025
6. Proposal 2025A-836325, 3 nights	2025
5. Proposal 2024B-866563, 6.5 nights	2024
4. Proposal 2024A-649553, 5 nights	2024
3. Proposal 2023B-181920, 6.5 nights	2024
2. Proposal 2023A-858344, 10 nights	2023
1. Proposal 2022B-289225, 8 nights	2022

TEACHING  
EXPERIENCE**Guest Lectures, Indiana University**

A103: "Life in the Universe: Extragalactic Astronomy"	Dec. 2024
A100: "Preparing for a Solar Eclipse"	Feb. 2024
A105: "Preparing for a Solar Eclipse"	Feb. 2024
A222: "Preparing for a Solar Eclipse"	Jan. 2024

**Instructor of Record, Indiana University**

Summer 2023, 2024

A105: Stars and Galaxies

**Associate Instructor, Indiana University**

Astronomy 452: Extragalactic Astronomy	Spring 2024
Astronomy 222: General Astronomy II	Spring 2023
Astronomy 221: General Astronomy I	Fall 2022, 2024
Astronomy 107: The Art of Astronomy	Spring 2022
Astronomy 107: The Art of Astronomy	Fall 2021

COMMUNITY  
INVOLVEMENT &  
LEADERSHIP**Service:**

Tea Talk Coordinator, <i>IU Astronomy Graduate Leadership</i>	2025 - Present
Graduate Student Mentor, <i>IU Astronomy Graduate Leadership</i>	2024 - Present
PyIU Organizing Committee, <i>PyIU: A Workshop Series on Python Essentials</i>	2022 - Present
Informal Mentor, <i>IU Astronomy Alice Palma Undergraduate Research Program</i>	2023 - 2025
Eclipse Coordinator, <i>IU Astronomy</i>	2023 - 2024
Eclipse Microgrant Allocation Committee, <i>IU Center for Rural Engagement</i>	2023
Accessibility Intern, <i>Geneva Lake Astrophysics and STEAM</i>	2021
President, <i>GSU Society of Physics Students</i>	2019 - 2020

**Public Outreach:**

PyIU: A Workshop Series on Python Essentials, <i>Instructor, Code developer</i>	2022 - Present
Kirkwood Observatory Open Nights, <i>Telescope operator and tour guide</i>	2021 - Present
IU Science Fest, <i>Astronomy demo leader</i>	2022 - 2025
Indianapolis Children's Museum Stem Exploration Day, <i>Astronomy demo leader</i>	2021 - 2025
Kirkwood Observatory Solar Saturdays, <i>Solar telescope operator</i>	2025
Women & Technology Summit Booth, <i>Astronomy demo leader</i>	2024
International Day of Women and Girls in Science, <i>Astronomy demo leader</i>	2023
Fernbank Observatory, <i>Night sky guide</i>	2018

**Professional Development:**

PyIU: A Workshop Series on Python Essentials, <i>Indiana University</i>	2022 - Present
Organizer and code developer for the PyIU program, a free, graduate student-led Python workshop series for undergraduate. The program engages students of various backgrounds in astronomy and physics research.	
Github: : <a href="https://github.com/BrandonRadzom/pyiu">https://github.com/BrandonRadzom/pyiu</a>	

Peer Review Workshop, *American Astronomical Society Meeting* 2025  
 Participated in a peer review training workshop provided by AAS journal editors. Through completion of workshop, earned certificate and status as certified reviewer in AAS Journals system.

Code/Astro Software Engineering Workshop, *Northwestern University* 2024  
 Selected to participate in the week-long 2024 Code/Astro Workshop. The workshop covers best practices in producing and publishing open-source software development. Worked in a small group to build a software package from scratch. Github: <https://github.com/rhoward314/galpal>

## SKILLS

### **Programming Languages**

Python, IDL, Java

### **Softwares**

IRAF, L<sup>A</sup>T<sub>E</sub>X, TOPCAT, Blender, Adobe Photoshop, Microsoft Office Suite