
Brooke Kimsey-Miller

CONTACT INFORMATION

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EDUCATION

Graduate Student, Astronomy, Indiana University
GPA: 3.4
Thesis Project: Abundances of Star-Forming Galaxies as
a Function of Density and Redshift
Advisor: Prof. John J. Salzer

Anticipated
August 2024

B.S., Astronomy, Astronomy
B.S., Physics, Physics
B.S., Mathematics, Mathematics
Indiana University
Honors Thesis Title: A Recipe for Green Pea Environments
Advisor: Prof. John J. Salzer

August 2014 -
May 2019

RESEARCH EXPERIENCE

Research Assistant, Indiana University
Advisor: Prof. John J. Salzer

2019 - Present

Analyzing the relationship between abundance, density, and redshift of a large sample of emission-line galaxies and with z between 0.1 and 0.5. Using spectroscopic data from WIYN 3.5m and Hydra, a multi-object spectrograph.

Research Assistant, Indiana University
Advisor: Prof. John J. Salzer

2018 - 2019

Reduced and analyzed spectroscopic data taken with the WIYN 3.5m and Hydra. Measured over 800 new spectroscopic redshifts of galaxies using cross-correlation method. My work is part of a larger project aimed at analyzing whether galaxy environment is the main factor that causes the extreme star formation rate of "Green Pea" galaxies.

NSF REU Student, Ohio Wesleyan University
Advisor: Prof. Robert Harmon

Summer 2018

Acquired, reduced and analyzed data to produce light curves of a variable star, LO Pegasi, in order to map its starspots to a 2D model. Presented results in an American Physical Society poster presentation in April 2019.

Research Assistant, Indiana University
Advisor: Prof. Katherine Rhode

Summer 2017

Mastered Python scripting and working with Image Reduction and Analysis Facility (IRAF) tasks and ds9 to analyze globular cluster candidates in external galaxies. My work was part of a larger project working with globular clusters to study galaxy formation and evolution.

TEACHING
EXPERIENCE**Associate Instructor, A103 Search for Life**

Fall 2020

Indiana University

Online Introductory course for non-majors. Responsibilities included grading, holding office hours, and giving feedback to 200 students. Topics included: How life began on Earth and what environments are needed and how a specific environment could be habitable.

Associate Instructor, A105 Stars and GalaxiesSpring 2020,
Spring 2021*Indiana University*

Introductory course for non-majors. Responsibilities included grading, holding office hours, and giving feedback up to 250 students. Aided Professor in converting assignments to online during pandemic.

Topics included: The properties, formation, and evolution of stars and galaxies and the origin and fate of the Universe.

Associate Instructor, A107 The Art of AstronomyFall 2019,
Summer 2021*Indiana University*

Introductory course for non-majors. Responsibilities included grading, holding office hours, and giving feedback to 120 students for Fall 2019, 30 students Summer 2021.

Topics included: The EM spectrum and using Photoshop to create aesthetically pleasing images from broadband and narrowband images.

OBSERVING
EXPERIENCE**Perkins Observatory**

Summer 2018

Delaware, Ohio

Performed CCD camera observations on the 14-inch reflector campus research telescope.

5 nights, to acquire data for summer REU research project.

OUTREACH

Outreach Coordinator

2021 - 2022

Indiana University

Work closely with Event Coordinators and Department chair to develop and plan Outreach Events presented by the IU Astronomy Department.

**RISE (Jim Holland Research Initiative in STEM Education):
Gravitational Waves**

2021

Indiana University

Presented two online talks to groups of 4 high achieving high school students. Included interactive learning by fitting LIGO data in order to approximate a mass and distance to the black hole mergers.

GEMS (Girls in Engineering, Math, and Science): Filters

2021

Bloomington, IN

Developed and presented four online talks to groups of 7-8 middle school girls on the filters Astronomers use for observations. Included interactive learning by looking at astronomical images through red and blue gels.

OUTREACH	Diversity Committee & AIP's TEAM-UP Project <i>Bloomington, IN</i> Member of the newly created Diversity committee in the IU Astronomy Department. Focuses on investigating methods to improve the inclusivity of the department. Work closely with Physics department to improve representation of Black and African American Astronomers and Physicists.	2020
	Bartholomew County Public Library <i>Columbus, IN</i> Event 1: Utilizing a simple circuit, I presented an experiment for adults and children to learn about electric potential and Ohm's Law. Event 2: Lunar phase activity with Oreo's and observing the Moon threw an 8-in reflector telescope.	Winter 2019
	Kirkwood Observatory <i>Bloomington, IN</i> Co-host public observing nights, with a typical attendance of 60 people, on a 12-inch refractor for the local community. The moon, planets, and a few Messier objects are the main objects viewed.	2019, 2021
	Science Fest <i>Indiana University</i> Participate in annual outreach science festival that provides hands-on science activities (such as making comets and Solar System trivia) for children.	2017 - Present
	Solar Eclipse <i>Nashville, IN & Bloomington, IN</i> I and two colleagues explained how solar eclipses work to seven groups of 20 young elementary school children as part of a day long event and 20 middle school students as part of a classroom visit.	2017
HONORS AND AWARDS	Presidential Scholarship (\$5,500/year) 21 st Century Scholarship (\$10,000/year) 21 st Century Scholarship (\$10,000/year) Hollis & Grete Johnson Research Prize (\$400) Research Scholarship Award (\$1,500)	2009 - 2010 2009 - 2010 2017 - 2019 2019 2019
COMPUTER SKILLS	Programming Languages & Software Python, bash, Anaconda, ROOT, L ^A T _E X, Mathematica, IRAF, Microsoft Office, Mira, MaxIM DL	
CONFERENCES AND PROCEEDINGS	[1]Jewell, A., Kimsey-Miller, B. , Harmon, R. O., Starspots on LO Pegasi. Poster presented at American Physical Society April Meeting 2019; Denver, CO. Volume 64, Number 3 [2] Brunker, S. W., Kimsey-Miller, B. , Cousins, B., Salzer, J. Probing the Environments of Extreme Star-Forming Galaxies. Poster presented at American Astronomical Society Meeting 2019 Jan 6-10; Seattle, WA. 2019AAS...23336801B	