

Brooke Kimsey-Miller

CONTACT INFORMATION

Address: Astronomy Department
Swain West Hall
727 E. 3rd Street
Bloomington, IN 47405

Email: bkkimsey@iu.edu
Phone: (812) 498-9120

EDUCATION

Graduate Student, Astronomy, Indiana University
GPA: 3.800
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, A105 Stars and Galaxies**

Spring 2020

Indiana University

Introductory course for non-majors. Responsibilities included grading, holding office hours, and giving feedback to 250 students. Aided Professor in converting the course to Online during COVID-19 pandemic.

Topics included: The basic structure of our local neighborhood; the structure and evolution of the Sun and other stars; the properties, formation, and evolution of galaxies; the large-scale structure of the Universe; and the origin and fate of the Universe.

Associate Instructor, A107 The Art of Astronomy

Fall 2019

Indiana University

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

Topics included: The electromagnetic spectrum; spectral lines of point-like and extended objects; using Photoshop to create astronomical images from broadband and narrowband images.

Undergraduate Teaching Assistant, A105 Stars and Galaxies

Spring 2019,

Indiana University

Introductory course for non-majors. Responsibilities included grading classwork and helping 150-250 students understand new material.

Topics included: The basic structure of our local neighborhood; the structure and evolution of the Sun and other stars; the properties, formation, and evolution of galaxies; the large-scale structure of the Universe; and the origin and fate of the Universe.

Undergraduate Grader, J112 Intro to College Math II

Spring 2019

Indiana University

Two courses in the Spring semester and one in the Fall semester. Responsibilities included grading and providing feedback on homework for 30-40 students per course.

Topics included: Algebraic operations and equations; functions and graphing; polynomials; exponential and logarithmic functions.

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

Bartholomew County Public Library

2019

*Columbus, IN**November 2019*

Utilizing a simple circuit, I presented an experiment for adults and children to learn about electric potential and Ohm's Law.

December 2019

Lunar phase activity with Oreo's and observing the Moon threw an 8-in reflector telescope.

OUTREACH	Kirkwood Observatory <i>Bloomington, IN</i> Co-host public observing nights on 12-inch refractor for the local community. The moon, planets, and a few Messier objects are the main objects viewed. Typical attendance is approximately 60 people per night.	2019
	Science Fest <i>Indiana University</i> Participate in annual outreach science festival that provides hands-on science activities for children. Duties have included making comets, welcoming families into Kirkwood Observatory, and asking children questions about the Solar System.	2017 - Present
	Solar Eclipse <i>Nashville, IN</i> As part of an all-day Saturday event to engage children in the sciences, I and two colleagues explained the Solar System and how solar eclipses work to seven groups of 20 young elementary school children. <i>Bloomington, IN</i> I and two colleagues explained the solar eclipse to 20 middle school students as part of a classroom visit.	2017
HONORS AND AWARDS	Presidential Scholarship (\$5,500/year)	2009 - 2010
	21 st Century Scholarship (\$10,000/year)	2009 - 2010
	National Society of Leadership & Success	2015 - Present
	21 st Century Scholarship (\$10,000/year)	2017 - 2019
	Hollis & Grete Johnson Research Prize (\$400)	2019
	Research Scholarship Award (\$1,500)	2019
COMPUTER SKILLS	Programming Languages Python, bash, C/C++	
	Software Anaconda, ROOT, L ^A T _E X, Mathematica, IRAF, Microsoft Office, Mira, MaxIM DL, Visual Basic	
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, Volume 64, Number 3; 2019 April 13; Denver, CO.	
	[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	