

Alex M. Garcia

Contacts

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Areas of Interest

Galaxy Formation and Evolution & Cosmological Simulations of the Universe

Talks

2. Stellar Metallicities in IllustrisTNG
UF Graduate Symposium
October 2022
1. Metallicity Break Radii in IllustrisTNG Galaxies
Master's Defense
September 2022 [Video]

Technical Skills

●●● = Fluent
●●● = Proficient
●●● = Familiar

●●● Python

●●● L^AT_EX ●●● Tikz

●●● Microsoft Office

●●● Google Workspace

●●● Bash

●●● SLURM

●●● HTML

●●● JavaScript

●●● CSS

●●● Git/Github

●●● R

Education

University of Florida Master's of Science in Astronomy
2021 – Present

University of Illinois Bachelor's of Science in Engineering Physics (*Honors*)
2017 – 2021 Bachelor's of Science in Astronomy (*Distinction*)

Research Experience

Graduate Researcher Gainesville, Florida
2021 – Present Advisor: Paul Torrey

Undergrad Researcher Urbana, IL
2020 – 2021 Advisors: Bryan Dunne, Yue Shen

Students Mentored:

- ◇ Caitlin O'Brien (REU Student) – Measuring Splashback Radii in galaxy clusters using IllustrisTNG300

Publications

First Author Publications:

1. *Gas-phase metallicity break radii of star-forming galaxies in IllustrisTNG*
Garcia, Torrey, Hemler, Hernquist, Kewley, Grasha, Nelson, Zovaro, Chen.
MNRAS. September 2022. [Preprint]

Co-Author Publications:

1. *Gas-phase metallicity plateaus in TNG50 galaxies*
Hemler, Garcia, Torrey, Hernquist, Kewley, Grasha, Nelson. MNRAS. In Prep

Non-research:

2. *Hands-on Astronomy – Tenth Edition*: UF Astronomy 1022L Lab manual
1. *Astronomy Laboratory Exercises and eXperiments (ALEX)*: UF Astronomy 1022L Lab software [Github] [View]

Professional Experience

Teaching/Course Assistant

Gainesville, FL/Urbana, IL

	Course	Semester
University of Florida	AST 1022L - Astronomy Laboratory*	Spring 2022
	AST 1002 - Discovering the Universe	Fall 2021
University of Illinois	ASTR 330 - Extraterrestrial Life	Spring 2021
	ASTR 330 - Extraterrestrial Life	Winter 2021
	ASTR 100 - Introduction to Astronomy	Fall 2020
	ASTR 150 - Killer Skies: Astro-Disasters	Fall 2020

*Served as primary instructor for the course

—Honors and Awards—

- University of Illinois Tutor of the Year Honorable Mention
Spring 2021
- University of Illinois Tutor of the Year Finalist
Spring 2021
- Dean's List, College of Liberal Arts and Sciences (UIUC)
Fall 2020
- Dean's List, Grainger College of Engineering (UIUC)
Spring 2018, 19
- Access and Achievement Scholar (UIUC)
Fall 2017 - Spring 2021
- Eagle Scout, Boy Scouts of America
April 2015

—Committees—

Committee for Diversity, Equity and Inclusion

University of Florida Astronomy
2021 - Present

- During the Spring 2022 semester, I reformatted the entire AST 1022L lab manual into LaTeX (including most of the figures in Tikz) for ease of editing and uniformity throughout the entire 160+ page manual.
- Created lab software in HTML/JS to replace outdated software for three labs (AST 1022L).
- Host observatory sessions at the campus observatory for students in the course to attend. Includes setting up an array of telescopes and fielding student questions on their assignments.

Part-Time Specialist

2021 - Present

Gainesville, FL

Kika Silva Pla Planetarium

- Design, develop, and present planetarium shows for K-12 classes, collegiate-level curriculum, as well as the general public.
- Host several shows, including *Florida Skies*: an hour long tour of the Gainesville night sky using a CHRONOS Optical-Mechanical Projector.

Tutor

2018 - 2021

Urbana, IL

Center for Academic Resources in Engineering

- Guided undergraduate students towards success in various homework assignments in a number of different disciplines.
- Planned and led small group exam review sessions, including the creation of worksheets, for specific courses and presented to students in order to help them review for exams.
- Analyzed the data on traffic of incoming students and created monthly reports of attendance, tracking several different variables.

Visual Instructor

2018 - 2021

New Lenox, IL

Lincoln-Way Marching Band

- Assisted on the field teaching students how to perfect and perform an eight-minute field show. Included teaching management of simultaneous demand and awareness.
- Worked within a group of staff members on lesson plans and communicated on how to most effectively budget and allocate time to improving the overall product.

—Activities—

Bluecoats Drum and Bugle Corps
Madison Scouts Drum and Bugle Corps

Summer 2019, 2020, 2021
Summer 2017, 2018