Dr. Olivia Allegra Greene

Astrophysicist
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Education

Vanderbilt University — **Nashville, TN**
PhD - Astrophysics — *Aug, 2020 - Jan, 2026*

Fisk University — **Nashville, TN**
Master of Science - Physics — *Aug, 2017 - 2020*

Florida Atlantic University, Harriet L. Wilkes Honors College — **Jupiter, FL**
Bachelor of Science - Physics, with Minors in Mathematics & English Literature — *Aug, 2013 - May, 2017*

Palm Beach State College — **Lake Worth, FL**
Associate of Arts — *Aug, 2006 - 2013*

Research Experience

Vanderbilt University — Nashville, TN
Astrophysics PhD Graduate — Advisor: Dr. Kelly Holley-Bockelmann — *Aug, 2020 - Jan, 2026*

- **Dissertation Research:** Curated complete Integral Field Spectroscopic (IFS) catalog of E+A galaxies within the final MaNGA product launch (MPL-11), using the refined classification method developed during my Master's tenure, and performed preliminary investigations into possible AGN activity within the catalog.
- Co-founded The Neuroverse Initiative, 2024.
- Inaugural graduate of the Establishing Multimessenger Astronomy Inclusive Training (EMIT) Program.
- Awarded Vanderbilt University's **Robert T. Lagemann Award** for exceptional promise in physics, 2021.

Fisk-Vanderbilt Master's-to-PhD Bridge Program — Nashville, TN
Physics Graduate Researcher — Advisor: Dr. Kelly Holley-Bockelmann (Full-time) — *Aug, 2017 - 2020*

- **Master's Thesis:**Created a refined system for the identification of E+A galaxies using the Integral Field Spectroscopic, MaNGA Survey. Title: "Refining the E+A Galaxy: A Spatially Resolved Spectrophotometric Sample of Nearby Post-starburst Systems in SDSS-IV MaNGA (MPL-5)."
- Graduated **Summa Cum Laude** from Fisk University.

Florida Atlantic University — Jupiter, FL
Undergraduate Researcher — Advisors: Dr. Andrew Johnson & Dr. Charles T. Liu (Part-time) — *Aug, 2016 - 2017*

- **Honors Thesis:**Continuing the work from my REU internship in classifying and modeling Spectral Energy Distributions for E+A galaxies, I completed my undergraduate Honors Thesis. Title: "Preliminary Finding & Spectral Energy Distributions For Nearby E+A Galaxies Using the MaNGA Survey."
- Graduated with **Honors Degree** from the Harriet L. Wilkes Honors College.

American Museum of Natural History — New York, NY
REU Intern — Advisor: Dr. Charles T. Liu (Full-time) — *May - Aug, 2016*

- **Classified** Post-Starburst, E+A galaxies from the SDSS-IV-MaNGA Survey's 4th Product Launch (MPL-4).
- **Created** multiwavelength SEDs using GALEX, SDSS, 2MASS and WISE data.
- **Developed** emission-line line ratio and AGN diagnostic plots for the curated sample.

Professional Leadership & Employment

The Neuroverse Initiative, INC — Nashville, TN
Chief Financial Officer & Director of SciComm Events — *Sept, 2024 - Present*

- **Co-founded**a 501(c)(3) organization that works at the intersection of space science and neurodiversity.
- **Oversees** financial operations, maintains financial records, manages filing of government compliant documents, and all legal contracts and documents.
- **Directs** science communication events and conventions, including organizer liaison, panelist preparation for all team members, and merchandise management for advocacy and fundraising.
- **Develops and delivers** panels and SciComm presentations at conventions on behalf of The Neuroverse Initiative, and creates supporting resources for all team presenters.
- **Supports** CEO and Board of Directors in daily operations.

Florida Atlantic University — Boca Raton, FL
Assistant Observatory Lecturer and Technician — *Aug, 2016 - 2017*

- Observatory Operations: Managed telescope and dome setup, operation, and shutdown for public and student observations. Conducted regular maintenance, including balancing, positioning, and weather management of the telescope throughout the year.
- Educational Support: Assisted with pre-observation lectures, provided in-depth answers to participant questions, and facilitated hands-on experimental demonstrations to enhance learning experiences.

Teaching Experience

Vanderbilt University Nashville, TN (Remote)
Instructor of Record for Astronomy Lab *May - Jun, 2021*

- Led expedited 4-week Introductory Astronomy Lab, independently.
- Condensed 13-week curriculum into 4 weeks.
- Managed all aspects of course, including assignment upload/release via TopHat, weekly grading via Brightspace, final project review and final grade submission into university's records system.
- Conducted M-Th, daily lab sessions and provided student support.

Vanderbilt University Nashville, TN (Remote)
Teaching Assistant for Astronomy Lab *Aug, 2020 - May, 2021*

- Facilitated weekly lab sessions for Introductory Astronomy Course.
- Held office hours and provided email support.
- Graded labs, extra credit materials, and final poster presentations.

Florida Atlantic University Boca Raton, FL
Teaching Assistant for Astronomy Department *Aug, 2016 - Aug, 2017*

- Assisted with Astronomy 101 and Solar System Astronomy Courses.
- Held biweekly office hours and provided individual/group tutoring for astronomy courses & math practice.
- Graded and proctored quizzes, tests, and math practice assignments.
- Converted course materials from Blackboard to Canvas platform.

Mentoring & Program Development

American Museum of Natural History New York, NY
REU Mentor *May 2017 - 2019*

- Traveled annually to New York to introduce & guide REU participants through their current research project.
- Mentored REUs in IFS classification, data mining with Marvin, and All-Sky Survey usage.
- Guided research production, poster/talk preparations, and conference readiness.
- Managed on-boarding of new participants into SDSS collaboration.
- Sustained long-term mentoring relationships beyond program conclusion.

EMIT Program at Vanderbilt University Nashville, TN
Summer Program Planning Committee Member *Mar - Aug, 2023*

- Developed interactive planning schedule for committee members, and assisted in developing program structure, activities, and final project.
- Created online application form for prospectives, reviewed applications, and made final admission decisions.
- Communicated with enrolled students on various program topics.
- Coordinated "Allyship in the Workplace" seminar, including speaker booking.

Outreach Initiatives

Creation Entertainment's Star Trek Conventions Nationwide
Astronomy Expert & Science Communications Panelist *Sept, 2024 - Present*

- **SciComm Panels:** Present a series of astrophysics panels at Star Trek conventions through The Neuroverse Initiative's Advocacy and Outreach arm.
- Explain complex astrophysics concepts using Star Trek themes for public engagement.
- Topics include: Kardashev Scale, habitable exoplanets, Europa, galactic archaeology and evolution, and the neurodiversity of Star Trek characters.
- **Exhibit Hall:** Host table promoting astronomy, neurodiversity, and their intersection.
- Facilitate discussions on Star Trek-related space questions with attendees.
- Manage fundraising activities including donations, raffles, and prize giveaways.

AAS Pre-Conference Workshops Nationwide
Workshop Facilitator, The Neuroverse Initiative *Jan, 2024, 2025, & 2026*

- **"How to Conference Successfully"**(Jan 2024, Seattle; Jan 2025, National Harbor; Jan 2026, Phoenix)
  - Co-facilitated workshop for early career astronomers, first-time attendees, & neurodivergent individuals.
  - Helped implement curriculum covering effective use of social media, schedule management, self-care strategies, and presentation skills.
  - Created and assembled participant handout folders with curated resources.
  - Designed and developed workshop webpage, including maps and annotated topic schedules.
  - Managed workshop logistics: room setup, participant sign-in, and on-site support.

- Facilitated open discussions and provided individualized guidance to attendees.
- Contributed to tailoring content for diverse attendees, including neurodivergent individuals.

◦ **"Neurodiversity, Neuroinclusion, and the Strengths of Neurodiversity in STEM"** (Jan 2026, Phoenix)
- Co-led 6-hour intensive workshop on making graduate-level STEM programs more neuroinclusive.
- Delivered comprehensive training covering: what neurodiversity is, ADA guidelines, supporting neurodivergent students, specific tools that can be used to facilitate support, and cultivating neurodivergent potential in academic settings.
- Targeted audience: Faculty, program directors, and administrators in masters and PhD programs.
- Provided actionable strategies for creating accessible and supportive educational environments.

Adventure Science Center Nashville, TN
Astronomy Event Coordinator & Presenter *May, 2022 - Present*
- ◦ Coordinate and lead astronomy events in partnership with Vanderbilt Physics and Astronomy Department.
- ◦ Organize both children's and adult events, tailoring content to age range and event theme.
- ◦ Ongoing initiative to promote astronomy education and public engagement.
- ◦ Representative Events:
  - Green Week: Presented on exoplanets and Mars terraforming; demonstrated gravity, spectroscopy, cratering, and planet-moon size comparisons.
  - Star Trek event: Delivered talks, managed spectroscopy booth, and led astronomy & pop-culture trivia.
  - TN STEAM Festival: Facilitated solar observations, spectroscopy demonstrations, sundial and pinhole camera construction for partial eclipse viewing.

Adventure Science Center Nashville, TN
Exhibit Designer and Content Curator *In Progress*
- ◦ Designed and proposed "The Many Faces of Astronomy," a diversity-focused exhibit.
- ◦ Curated profiles of 5 influential space scientists for initial interactive digital display, with expansion plans.
- ◦ Developed content for existing interactive digital interface to enhance visitor engagement.
- ◦ Incorporated multilingual content based on MNPS student demographics (40% non-English primary language).
- ◦ Tailored exhibit to Nashville's highly diverse demographic profile, using MNPS data representing students from multiple ethnic and linguistic backgrounds.
- ◦ Integrated current demographic data on astronomers to highlight need for increased diversity in the field.
- ◦ Aimed to inspire scientific literacy and interest among underrepresented youth through informal learning.

Ask-An-Astronomer Nashville, TN
Founder / Creator / Presenting Astrophysicist *May, 2021 - Present*

Mission: To encourage, inspire, and maintain a diverse, scientifically literate youth.
- Created an astronomer-led program for K-12 students to engage with, and learn from career astrophysicists.

Flagship Event May 2021
- Two-day virtual event at a Metro-Nashville middle school, with 6 Vanderbilt-based astronomers, leading discussions for six 7th grade classrooms, over four 80-minute class sessions.
- Each presentation included a short description of the presenting astronomer's research, their personal path to becoming an astronomer, and a Q&A session with pre-submitted and follow-up questions from students.

The School for Science and Math at Vanderbilt, Guest Lecturer Nov 27, 2023
- Contributed expertise to the topic: "How far can we see into the universe?" for 9th grade STEM students.
- Conducted an interactive lecture on the physics of light and spectroscopy as a map to the universe's contents.
- Focused on galactic spectra and evolution, enhancing students' understanding of cosmic structures.
- Facilitated hands-on learning via interactive demonstration using emission lamps and diffraction gratings.

H. G. Hill Middle School, Guest Lecturer Oct 25, 2023
- Presented "Spectroscopy 101" to 8th grade class, introducing fundamental concepts of light.
- Covered the electromagnetic spectrum and its wide-ranging applications in astronomical research.
- Conducted demonstration with emission lamps and diffraction gratings to visualize spectral phenomena.
- Created and implemented a custom worksheet to reinforce learning objectives.
- Facilitated an in-depth Q&A session, addressing students' curiosities about astronomy and astrophysics.

Pinecrest Academy Avalon K-5, Virtual Guest Lecturer May 20, 2022
- Expanded program to Florida, delivering a virtual 1 hour presentation to five 6th and 7th grade classes.
- Shared personal non-traditional journey, with a focus on astrophysics, to inspire diverse paths in astronomy.
- Engaged students with interactive content on the role of astrophysicists in modern science.

- Provided curated astronomy resources for students to explore and participate in citizen science projects.

Galaxy Quest! Hybrid
Author/Project Developer for Citizen Science Research *Mar, 2022 - Dec, 2024*

- Developed a citizen science project to classify E+A galaxies from the 11th & final MaNGA Product Launch.
- Implemented an updated version of The Falcone Method for streamlined data processing and analysis, using Google Drive for efficient data management and progress tracking.
- Created a Jupyter Notebook for spectroscopic measurements of equivalent widths, to serve as a research tool
- Managed a diverse team of 27 citizen scientists across 3 countries, 8 United States, and 5 academic career stages.
- Led comprehensive double-blind classification of 10,248 galaxies, implementing rigorous quality control measures to ensure accuracy and consistency in galaxy classifications.
- Developed training materials for single-fiber classifications and equivalent width measurements.
- Facilitated the first publication opportunity for many citizen scientist participants.

Florida Atlantic University Boca Raton, FL
Guest Lectured Undergraduate Intro to Astronomy Course *Dec, 2016*

- Presented overview of APO 2.5-meter telescope, MaNGA Survey and E+A Galaxies to 200+ students.
- Shared insights on field research experiences, and astronomy community involvement.

Presentations

16. **PhD Dissertation Defense:** *"Seeing What Is, What Was, What Could Be, What Must Not: Refining, Cataloging, and Investigating A Complete, Spatially Resolved Spectrophotometric Sample of Nearby Post-starburst E+A Galaxies in SDSS-IV MaNGA"*; Vanderbilt University (Oct 31, 2025).
15. **Talk:** *"The Unique Neuroexclusion of Space Science and How to Overcome It"*, College Autism Summit; Pittsburgh, PA (Nov, 2025).
14. **Talk:** *"The Neuroverse Initiative: How to Access Neuroinclusion Programs and Training"*, American Astronomical Society (AAS) Meeting Abstracts, Vol. 57, 246.09; National Harbor, MD (Jan, 2025).
13. **Poster:** *"Finalizing A Complete Catalog of E+A Galaxies in SDSS IV-MaNGA: A Citizen Science Approach to Spectrophotometric Classification & the Automation of Equivalent Width Measurements."*, AAS Meeting Abstracts, Vol. 57, 158.14; National Harbor, MD (Jan, 2025).
12. **Dissertation Talk:** *"The E+A Galaxy (Olivia's Version): Refined, Cataloged & Investigated using SDSS-IV MaNGA"*, AAS Meeting Abstracts, Vol. 56, 443.06D; New Orleans, LA (Jan, 2024).
11. **Poster + Lightening Talk:** *"Complete Catalog of Spatially-Resolved E+A Galaxies from SDSS IV-MaNGA (MPL-11) and Preliminary Results of Quenching Mechanism Investigation"*, Resolving Galaxy Ecosystems Across All Scales; Hong Kong, China (Dec, 2023).
10. **Poster:** *"Investigating Quenching in a Spatially Resolved Catalog of E+A Galaxies from SDSS-IV MaNGA"*, AAS Meeting Abstracts, Vol. 55, 408.04; Seattle, WA (Jan, 2023).
9. **Master's Thesis Defense:** *"Refining the E+A Galaxy: A Spatially Resolved Spectrophotometric Sample of Nearby Post-starburst Systems in SDSS-IV MaNGA (MPL-5)"; Fisk University - Remote* (July, 2020).
8. **Talk:** *"Refining the E+A Galaxy: A Spatially Resolved Spectral Analysis & Synthesis of Nearby Post-Starburst Systems in SDSS-IV MaNGA (MPL-5)"*, AAS Meeting Abstracts, Vol. 235, 258.02; Honolulu, HI (Jan, 2020).
7. **Poster:** *"Refining the E+A Galaxy: A Spatially Resolved Spectral Analysis & Synthesis of Nearby Post-Starburst Systems in SDSS-IV MaNGA (MPL-5)"*, AAS Meeting Abstracts, Vol. 233, 145.06; Seattle, WA (Jan, 2019).
6. **Poster:** *"Behind the Curtain: Revealing the effect of sub-grid models on supermassive black hole merger rates for LISA"*, AAS Abstracts, Vol. 233, 141.09; Seattle, WA (Jan, 2019).
5. **Poster:** *"Spectral Analysis, Synthesis and Energy Distributions of Nearby E+A Galaxies Using SDSS-IV MaNGA"*, American Astronomical Society Meeting Abstracts, Vol. 229, 347.55; Dallas, TX (Jan, 2017).
4. **Talk:** *"Preliminary Findings & Spectral Energy Distributions of Nearby E+A Galaxies,"* The American Museum of Natural History; New York, NY (Aug, 2016).

Publications

5. **Greene, O. A.**, et al. *"A Complete Catalog of Post-starburst, E+A Galaxies in SDSS-IV MaNGA (MPL-11): A Citizen Science Approach to Spectrophotometric Classification & the Automation of Equivalent Width Measurements."* (In Prep for ApJ.)
4. Ludwig, E., Iyer, K., Liu, C. T., Grwiser, E. and **Greene, O. A.** *"Comparing Star Formation Histories and Evolutionary Pathways of Post-Starburst and E+A Galaxies in TNG50 and SDSS-IV MaNGA"* (Aug, 2025); ApJ, 989, Issue 1, id.87, 16 pp.
3. **Greene, O. A.**, et al. *"Refining the E+A Galaxy: A Spatially Resolved Spectrophotometric Sample of Nearby Post-starburst Systems in SDSS-IV MaNGA (MPL-5)"* (April 2021); ApJ, 910, 162
2. Marinelli, M., **Greene, O. A.**, Riffel, R. A., Rowlands, K., & Liu, C. *"SDSS-IV MaNGA: A Dwarf E+A Galaxy Quenched by AGN Feedback"* (July 2020); RNAAS, 4, 110
1. Penny, S., Masters, K., L., Smethurst, R., Nichol, R. C., Krawczyk, C. M., Bizyaev, D., **Greene, O. A.**, Liu, C., et al. *"SDSS-IV MaNGA: Evidence of the importance of AGN feedback in low-mass galaxies."* (May 2018); MNRAS, 476(1):979–998

Selected Media Coverage

Featured Interview Dec, 2025
"Neurodivergent in astronomy: the early-career researcher edition" *Nature Astronomy, Vol. 9, p. 1754-1757*

- Shared experiences and insights on navigating astronomy as a neurodivergent researcher.

Editorial Feature Dec, 2025
"Drawing on the full diversity of mind" *Nature Astronomy, Vol. 9, p. 1747-1747*

- Mentioned by name in editorial discussing neurodiversity in STEM fields, with reference to featured interview.

Advocacy & Community Engagement

Frist Center for Autism and Innovation Ambassador Pittsburgh, PA
College Autism Summit *Nov, 2025*

- Represented The Neuroverse Initiative and Frist Center at College Autism Summit.
- Managed sponsor table, facilitated conversations with attendees about neurodiversity in STEM.
- Connected with students, families, and professionals interested in autism and innovation.
- Promoted resources and support for neurodivergent individuals in higher education and career paths.

Panelist Nashville, TN
NeuroTech Frontiers Summit *Oct, 2025*

- *"Neurodiversity Self-Advocacy in Jobs and Education"*: Participated as panelist in capacity as graduate astrophysics student and CFO of The Neuroverse Initiative.
- Addressed neurodiversity self-advocacy strategies in educational and professional settings.
- Shared personal experiences navigating graduate education and leadership roles as a neurodivergent individual.

Skills Summary

Languages:	Python, LaTeX, SQL
Platforms:	Mac, Windows, Linux Virtual Box
Tools:	Marvin (terminal and web-based), SDSS TRAC, SDSS SciServer, IRAF, GitHub, TAPVizieR
Soft Skills:	Public Speaking, Presentation Writing, Leadership, Event Management, Paper Writing and Editing, Data Reduction and Analysis, Proficient in Creating and Maintaining Organizational Data Systems.
Collaborations:	MaNGA Survey, Sloan Digital Sky Survey (SDSS), Fisk-Vanderbilt Master's-to-PhD Bridge Program, Establishing Multimessenger Astronomy Inclusive Training (EMIT) Program