Charles W. Brown Planetarium
Annual Report, AY21-22
THE BROWN PLANETARIUM MISSION...

To encourage scientific literacy and advancement through inspiring educational programming, innovative research, and service to our community.

THE PEOPLE WHO MAKE IT POSSIBLE...

Professional Staff

Robert Berrington
Acting Executive Planetarium Director

Dayna Thompson
Planetarium Director

Melanie Isenbarger
Planetarium Show Specialist

Student Staff

Caleb Whitcomb, '22

Nicolette Terracciano, '23

Greg Gallagher, '23

Madeline Shepley, '23

Riley Braselton, '23

& Thanks to the support from people like you, the Brown Planetarium has inspired countless people to explore space.
The numbers below reflect attendance from May 1, 2021-April 30, 2022. This timeframe is shifted from the typical academic year as we serve multiple community groups year-round. The Brown Planetarium stopped requiring reservations for public programs (due to COVID-19) in August 2021. The planetarium was closed to the public January-March due to nearby construction on the Cooper Science Complex.

**ATTENDANCE AT A GLANCE**

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10,791 Planetarium Guests

- 4,607 Public Event Guests
- 3,586 School Group Guests
- 945 Community Group Guests
- 1,653 BSU Group Guests

305 IN-PERSON EVENTS

- 100 Public Events
- 75 School Group Events
- 37 BSU Community Events
- 93 BSU Group Events

27 VIRTUAL EVENTS

- 505 engagements on Facebook
- 7,588 views on YouTube

Previous years’ annual attendance...

- 11,038 | AY20-21
- 18,992 | AY19-20
- 21,890 | AY18-19
- 21,286 | AY17-18
- 23,003 | AY16-17
- 19,820 | AY15-16
WATCH A VIDEO ON WHAT IT’S LIKE TO VISIT THE PLANETARIUM
INVITED TALKS FROM NASA EXPERTS AND BEYOND

We all know that the COVID-19 pandemic pushed us to try new things, including livestreaming events on YouTube. Well, we have continued these virtual events even after re-opening the dome to the public! Since May 2021, we hosted 6 YouTube Live events with subject matter experts from around the world. These events were hosted by Planetarium Director, Dayna Thompson, but also by graduate student, Greg Gallagher, who stepped in to gain experience!

▪ "Asteroid Day" Presentation with NASA's Jeff Woytach and researcher Nancy C. Wolfson; July 13, 2021

▪ "The Gateway: A Lunar Home Away from Home" with NASA's Andrew Rechenberg; August 25, 2021

▪ "Near-Earth Asteroid Science in the Modern Era" with Dr. Tim Spahr; September 2, 2021

▪ "NASA's Double Asteroid Redirection Test (DART): A Crash Course" with Dr. Andrew Rivkin; September 23, 2021

▪ "Searching for the quietest compact objects in the Milky Way" with Tharindu Jayasinghe Arachchilage; October 21, 2021

▪ "Opening a New Chapter of Exoplanet Science with JWST" with Dr. Ian Wong (NASA GSFC); November 11, 2021
BALL STATE CLASSES & GROUPS IN THE DOME

Ball State courses and groups met for various performances and experiences in the planetarium. The dome was used for teaching astronomy, and was also used to teach and inspire students in drawing, dance, and so much more, including:

- ASTR 100
- ASTR 120
- ASTR 124
- ASTR 126
- GEOG 101
- NREM 371
- CPSY 390
- MMP 495
- AFA 101
- DANC 287
- Student Government Association
- Physics Graduate Student Association

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Re: BSU class program held at Charles W. Brown Planetarium

The purpose of this letter is to express my appreciation for a program provided at the Charles W. Brown Planetarium for my NREM 371 class. The course is entitled “Outdoor Recreation and Society.” We know that visits to parks and outdoor recreation facilities can be enhanced by enjoying the stars and night sky, so I asked your staff to develop a program to help students learn techniques and observational skills.

It turned out to be a wonderful experience for the students, teaching assistant and myself. The Staff of the Planetarium were very welcoming and knowledgeable, and our host shaped the program agenda to meet the spirit of the course. We enjoyed learning about the constellations, reading the directions in the night sky, exploring more about some of the planets, and doing an activity in small groups. This filled most of the lab period from 9-10:50, and the presenter did a great job keeping students engaged.

We are fortunate to have such a resource as the Planetarium as an educational facility on Ball State campus to add value to our classes. I wanted to specifically express my gratitude to your Planetarium Director Dayna Thompson and Show Specialist Melanie Isenbarger for planning all the details of the program and taking suggestions for the learning outcomes envisioned. I was very pleased with how it went and look forward to visiting again in the future.

Sincerely,

Amy Gregg
Associate Professor
Environment, Geology and Natural Resources

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Ball State University
AFA 101

Ball State University
NREM 371
THE CONSTELLATION CREW

Department of Physics and Astronomy graduate and undergraduate students continued the Constellation Crew Live virtual series that started in the fall of 2020. The Constellation Crew presented 12 live programs, and provided a fun environment for learning and conversation. They covered topics such as Moon phases, the celestial origins of holidays, popular meteor showers, interesting deep-sky objects, and – of course – constellations!
SECOND ANNUAL ASTRONOMY SLAM

The 2nd Annual Astronomy Slam was held in the Brown Planetarium on September 25, 2021. This annual friendly competition between students allows them the chance to present a piece of the Universe to the public under the planetarium sky. The audience votes on the presentations, declaring a winner during this inspiring event. Undergraduate student, Nicolette Terracciano, won the 2021 Astronomy Slam Champion award! All student presenters were recognized at the event with awards – Greg Gallagher was awarded for “Best Energy,” Madeline Shepley for “Most Visually Engaging Presentation,” and Caleb Whitcomb for “Most Thought-Provoking Presentation.” Ball State student, Belle Wines, was the given the MVP trophy for her volunteer work during the event.

Event goals and objectives...

- To give students a place to share their passion for astronomy in a non-threatening atmosphere.
- To provide an opportunity for friendly competition and discussion between students.
- To award and recognize dedicated students.

It was so well done; my friends were thrilled I introduced this gem to them. If you are looking to impress your friends, family, or donors, take them to the Astronomy Slam next year. ... The Director of the Planetarium’s passion and enthusiasm for the planetarium and the student’s radiated out to all the entire evening. Lots of positive energy.

- Cathy Spieth, Director of Prospect Research, Ball State University Foundation (9/2021)
THE PARTNERSHIP WITH THE AAVSO CONTINUES

From 2021-2022, the Brown Planetarium staff created 11 fulldome and 360° planetarium episodes on variable stars alongside the American Association of Variable Star Observers and the International Planetarium Society. Two graduate students, Madeline Shepley and Ricky Gorby, each narrated and co-produced one of the shorts. Many of the shorts have been translated and narrated in French by volunteers in the field. These episodes expand the library of planetarium shows developed at Ball State and can be played on any digital planetarium software, allowing worldwide distribution and engagement. The shorts have been highlighted at conferences and fulldome festivals such as: the 2021 Great Lakes Planetarium Association Conference, the 2022 Mid-Atlantic Planetarium Association Conference, and the upcoming 2022 Fulldome Festival Brno and 2022 Southeastern Planetarium Association Conference.
Beyond the variable star episodes, the planetarium's full-length program, *The Christmas Star*, went through IP declaration and was added to the planetarium's show sales page. The full Christmas Star program will be shown at the 2022 BRNO Fulldome Film Festival. Undergraduate student, Nicolette Terracciano, updated our NGSS SkyExplorer Education Modules that were created for the dome back in 2019. Also, the Brown Planetarium's *Sunset Meditation* program was recently translated and narrated in [Portuguese](#) and [German](#) by volunteers in the field. This adds to the existing French and Spanish translations of the program.

I recently discovered your short planetarium shows from a colleague. I'm also a member of the AAVSO. It was a pleasant surprise. I can't wait to begin using them regularly in our programming.

-Mike Prokosch, Sam Houston State University Planetarium & Observatory (5/2021)

[I’m] finally getting around to watching the AAVSO programs you narrate and produce. WOW! Everything about them is done right. Great work!

SPECIAL EVENTS & TELESCOPE VIEWINGS

At least three telescope observing sessions were held on the sidewalk space outside the planetarium during public shows – a big thank you goes to Dr. Todd Vaccaro for helping start this trend this academic year. A special livestreamed view of the Moon was done on International Observe the Moon Night on October 16, 2021. Also, special activities and productions were added to public events leading up to the launch of the James Webb Space Telescope (JWST) on December 25, 2021. We continue to update the public on exciting news coming from the JWST.

The dome hosted a special musical performance, “Watching the Stars With Galileo” by Nicolas Andrade, who played the French Horn alongside two of his classmates (bottom left photo).

Former planetarium assistant, Sarah Vise (’19), visited on April 1, 2022 for a BSU Alumni Magazine article meeting about her experiences at Ball State and beyond (bottom right photo).
SELECTED PLANETARIUM CONFERENCES & MEETINGS

Great Lakes Planetarium Association Annual Conference

Planetarium Director, Dayna Thompson, and Planetarium Show Specialist, Melanie Isenbarger, traveled to Kalamazoo, MI in October 2021 to represent the Brown Planetarium. Ms. Thompson presented the Betelgeuse Variable Star Short to conference attendees in the host dome and Ms. Isenbarger presented on her planetarium story map with her presentation, “Within Reach: Accessibility and Finding Community Through Planetariums.”

Curiosity, Confidence, Challenge: A Conference for Girls on Careers in STEAM

Planetarium Director, Dayna Thompson, and Planetarium Show Specialist, Melanie Isenbarger, were invited to Indianapolis on March 12, 2022 to hold 5 workshops for roughly 60 middle school girls total at the 2022 STEAM Conference at Sycamore. Together, they explored the lifecycles of stars which included facilitating activities and discussions on nebulae, black holes, and UV light.

Great Lakes Planetarium Association State Meeting

Planetarium Director, Dayna Thompson, and Planetarium Show Specialist, Melanie Isenbarger, went to The Koch Immersive Theater & Planetarium at the Evansville Museum of Arts, History & Science on March 26, 2022 along with undergraduate student Nicolette Terracciano, and graduate student, Madeline Shepley. Ms. Thompson presented the March Variable Star Short on the star Propus while also giving an update on Brown Planetarium projects. Ms. Isenbarger and the students presented on the Constellation Crew programs.
TECHNOLOGY & PROGRAM UPDATES

With our new planetarium staff and program needs, we updated our equipment to include additional Alienware machines and a curved 38” monitor in the planetarium workroom that allow for additional 4K video production. An independent station was also setup for livestreaming events.

Our 5.1 digital surround-sound system was refurbished with a new audio equalizer and Mackie mixer, replacing two failing devices. Additionally, our dome’s LED lighting computer required maintenance for a new motherboard.

We have been able to start using the hands-on National Informal STEM Education Network activities we received during the pandemic. This included the popular nebula spin-art activity and the filtered light activity. We also put to use our vacuum pump with a new vacuum chamber purchased through support from the James and Nancy Watson Planetarium Science Education Fund.

We purchased the new fulldome planetarium program We Are Astronomers. This program was offered in the spring of 2022 and will be in our show library for 20 years. We also extended our license agreement for Eclipse: The Sun Revealed, which allows us to show the program for 2 more years, helping to get the community ready for the upcoming October 2023 and April 2024 solar eclipses.
UPDATES FROM ONE BALL STATE DAY

The planetarium had a successful One Ball State Day, raising $5,855 from 20 gifts. SSIA Technologies also donated 6 short fulldome clips for us to use indefinitely. Thank you to all of our wonderful donors: Dayna Thompson, Lori Corvino, William Shufelt, Marianne Grandon, Petra Zimmermann, Megan Shufelt, Lola Mauer, Daniel Tell, Charles Brown, Amie Gallagher, Ben Irwin, Paul & Jessica Gestwicki, Laurie Cox, Daniel Malone, Len Sterrett, Carole Elliot, Jeff Bryant, and to all of our anonymous donors!

I love the opportunities to engage in science and sharing science with the public outside of classes. The planetarium has really helped me improve on skills that I didn’t get to learn about in my undergraduate.

Madeline Shepley  
Master's Student, Physics

ONE BALL STATE DAY 2022
CHARLES W. BROWN PLANETARIUM

$1,014,655 RAISED
7,199 GIFTS

Charles W. Brown Planetarium has raised $5,855 from 20 gifts!

Thank You!

April 5, 2022
oneballstate.bsu.edu