



**BALL STATE  
UNIVERSITY**

Charles W. Brown  
Planetarium

# **Charles W. Brown Planetarium Annual Report, AY20-21**

## THE BROWN PLANETARIUM MISSION...

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



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## THE PEOPLE WHO MAKE IT POSSIBLE...

### Professional Staff

**Robert Berrington**

Acting Executive Planetarium  
Director



**Dayna Thompson**

Planetarium Director



**Rachel Williamson**

Planetarium Show Specialist



### Student Staff

**Melanie Isenbarger, '21**



**Caleb Whitcomb, '22**



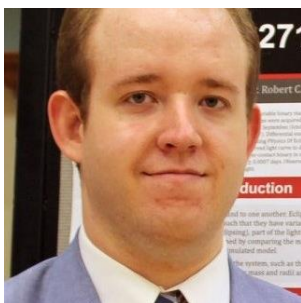
**Richard Gorby, '21**



**Nicolette Terracciano, '23**



**Alec Neal, '21**



**Greg Gallagher, '23**



+ Thanks to support from people like you, the Brown Planetarium has inspired countless people to explore space.





## ATTENDANCE AT A GLANCE

The numbers below reflect attendance from May 1, 2020 through April 30, 2021. This timeframe is shifted from the typical academic year as we serve multiple community groups year-round.

**NOTE:** The Brown Planetarium closed to the public and school groups on March 14, 2020 due to the COVID-19 pandemic. The dome re-opened to school groups on May 4, 2021 and will re-open to the public on June 3, 2021.

# 11,038 Planetarium Guests

## IN-PERSON EVENTS

- **263** class sessions.
- **16** BSU community events.
- **15** BSU groups by reservation.
- **5,059** students attending BSU Classes hosted in the dome.
- **299** special BSU show guests.
- **146** BSU students attending a special reserved session.

## VIRTUAL EVENTS

- **42** Facebook Live events.
- **59** Virtual visits for school groups.
- **3,465** engagements on Facebook Live.
- **2,069** K-12 graders and educators attending virtual visits.

## Previous years' annual attendance...

- 18,992 | AY19-20
- 21,890 | AY18-19
- 21,286 | AY17-18
- 23,003 | AY16-17
- 19,820 | AY15-16





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## VIRTUAL SUMMER SERIES

The COVID-19 pandemic has made it difficult to engage with the public – but it is not impossible. In fact, it has pushed us to try new things! This is why we have been bringing the night sky to our communities virtually. Since April 2020, we have been offering virtual programs. Our summer series *#YourUniverse* ran throughout the summer of 2020 with daily posts on our social media pages and special live events. What started out as a 1-person project, turned into an engaging series with over a dozen faculty, staff, and students contributing to content. Through lectures, panels, and hangout sessions, the Brown Planetarium crew engaged with thousands online — and we still have many more stories to tell and connections to make.

# #YourUniverse

Invited speakers from Ball State...

- Dr. Richard Fluegeman
- Dr. John Millis
- Dr. Todd Vaccaro
- Dr. Tom McConnell
- Dr. Gen Mager
- Dr. Michael Skoby
- Nicolette Terracciano, '23
- Daniel Brossard, '20

**YouTube**



@BrownPlanetarium



@BSUPlanetarium

**[www.bsu.edu/planetarium](http://www.bsu.edu/planetarium)**



## **BALL STATE CLASSES IN THE DOME**

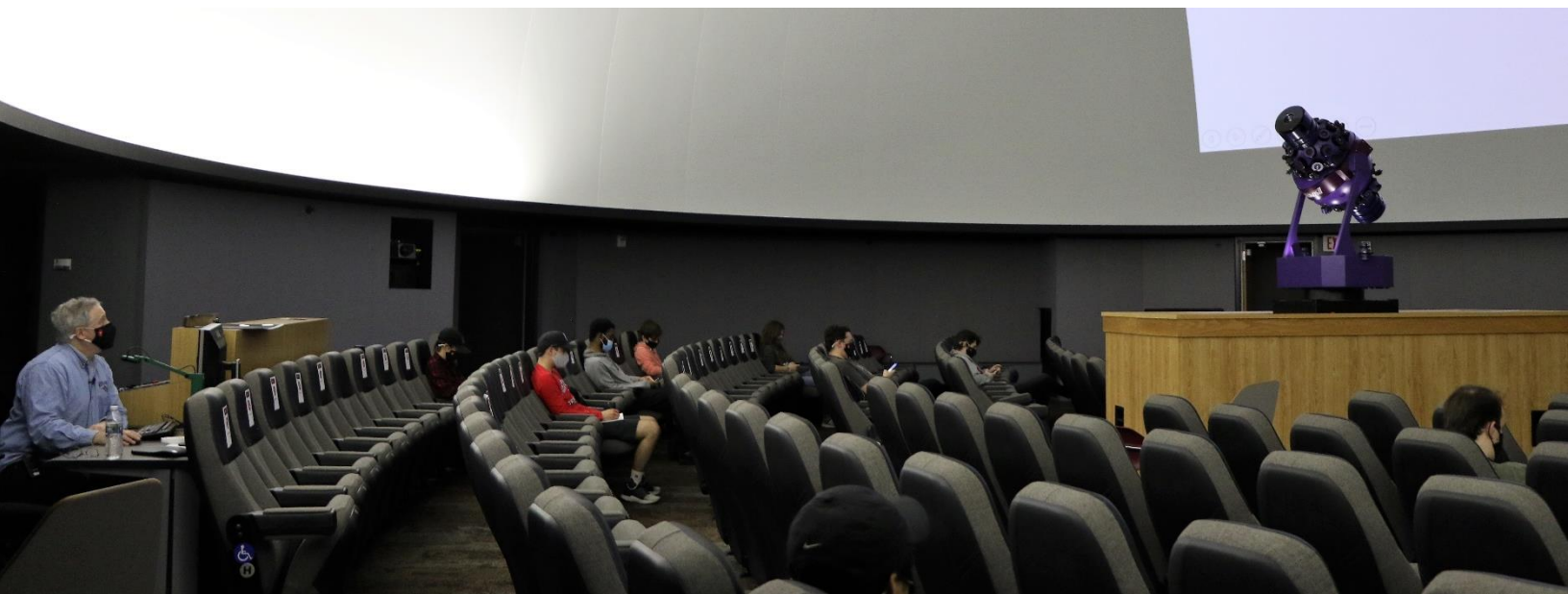
Ball State Astronomy and Geography courses met safely in the planetarium during the pandemic. Due to the physical distancing requirements on campus, and resulting limited room capacities, the dome was able to host these classes as the space was closed to school and public groups. While the dome is not a permanent classroom option, it was a great opportunity to expand our dome content and truly enhance course content. While Astronomy content was plenty, Geography used views of Earth from space to study longitude and latitude, glacial sea ice changes over time, and volcano locations throughout the globe.

Courses that met in the planetarium...

- Astronomy 100 (2 sections)
- Astronomy 120
- Astronomy 124
- Astronomy 126
- Geography 101 (3 sections)

**I will miss teaching in the planetarium next semester.  
Full dome content and sky simulations on the fly were  
fun to mix things up for lectures!**

-Dr. Todd Vaccaro, Professor of Physics & Astronomy







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## VIRTUAL VISITS

Brown Planetarium staff hosted over 2,000 K-12<sup>th</sup> grade students and their teachers virtually during the pandemic. They joined us over Zoom from 7 states including Rhode Island, California, Pennsylvania, Florida, Idaho, Illinois, and of course, our home state of Indiana. Even with the virtual visit success, we excitedly welcomed school groups back into the dome in May 2021 with updated Indiana State Standard information on our Planetarium Show Library listing.



**This week, the 5<sup>th</sup> graders did a virtual visit to the Charles W. Brown Planetarium in Muncie, Indiana. Thank you for a wonderful presentation. The students learned so much about our solar system and had so much fun!**

**-Conley Elementary School, Algonquin, IL**



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## THE CONSTELLATION CREW

In the fall of 2020, we started the Constellation Crew Live virtual series where student staff presented live on Facebook with Planetarium Director, Dayna Thompson. Together, they helped viewers find and explore constellations — exploring the “hidden” galaxies and objects that exist deep in that area of space. The Constellation Crew presented 23 live programs, providing a fun environment for learning and conversation. We aim to continue this series so that we can continue to explore our universe, and our night sky, for many years to come.

**My daughter is 8 and watches the Constellation Crew every chance she gets.**

-Anna Sky

**I was shocked at how much I learned. Honestly, I only initially logged on [for] extra credit, but I was pleasantly surprised at how much I enjoyed watching. I learned so much in such a short period of time. ... Overall, I thoroughly enjoyed watching this event, and I can't wait to learn [more].**

-Ball State Student







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## FIRST ANNUAL ASTRONOMY SLAM

The planetarium's first annual *Astronomy Slam* was held in November 2020! Just 10 minutes per person — that's all the time Ball State students got to share a piece of the universe with their audience while competing to be Astronomy Slam Champion. Decided by an on-line poll, undergraduate student Melanie Isenbarger won the 2020 Astronomy Slam Champion award. Other student presenters were recognized, with Alec Neal being awarded for the "Most Visually Engaging Presentation," Rickard Gorby for "Best Energy," and Belle Wines for "Most Thought-Provoking."



### Event goals and objectives...

- Give students a place to share their passion for astronomy in a non-threatening atmosphere.
- Provide an opportunity for friendly competition and discussion between students.
- Award and recognize dedicated students.

### Watch it on YouTube...

2020 Astronomy Slam at Ball State University

105 views • Nov 12, 2020

LIKE DISLIKE SHARE SAVE ...

**Brown Planetarium**  
386 subscribers

**SUBSCRIBE**

About 10 minutes a person – that is all the time Ball State students will get to share a piece of our universe with you. The 2020 Astronomy Slam topics were:





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## VIRTUAL 360° PROGRAMS

Additional engagement opportunities from Ball State's Brown Planetarium include our *Halloween: Celestial Origins* and *The Christmas Star* programs, which are on YouTube in 360° for people to enjoy remotely. This means the videos are interactive and simulate being inside the Brown Planetarium.



*The Christmas Star* program was viewed over 26,000 times in just a couple of months. In fact, a screenshot from the program went viral on social media, and the story was [reported on by USA Today](#). The program was updated with new visuals, illustrations, music, and more, while still maintaining the original vision of Dr. Ron Kaitchuck — show writer and past planetarium director at Ball State. We aim to distribute the program to digital planetariums worldwide in time for the 2021 winter holiday season.

Screenshot from *Halloween: Celestial Origins* 360°





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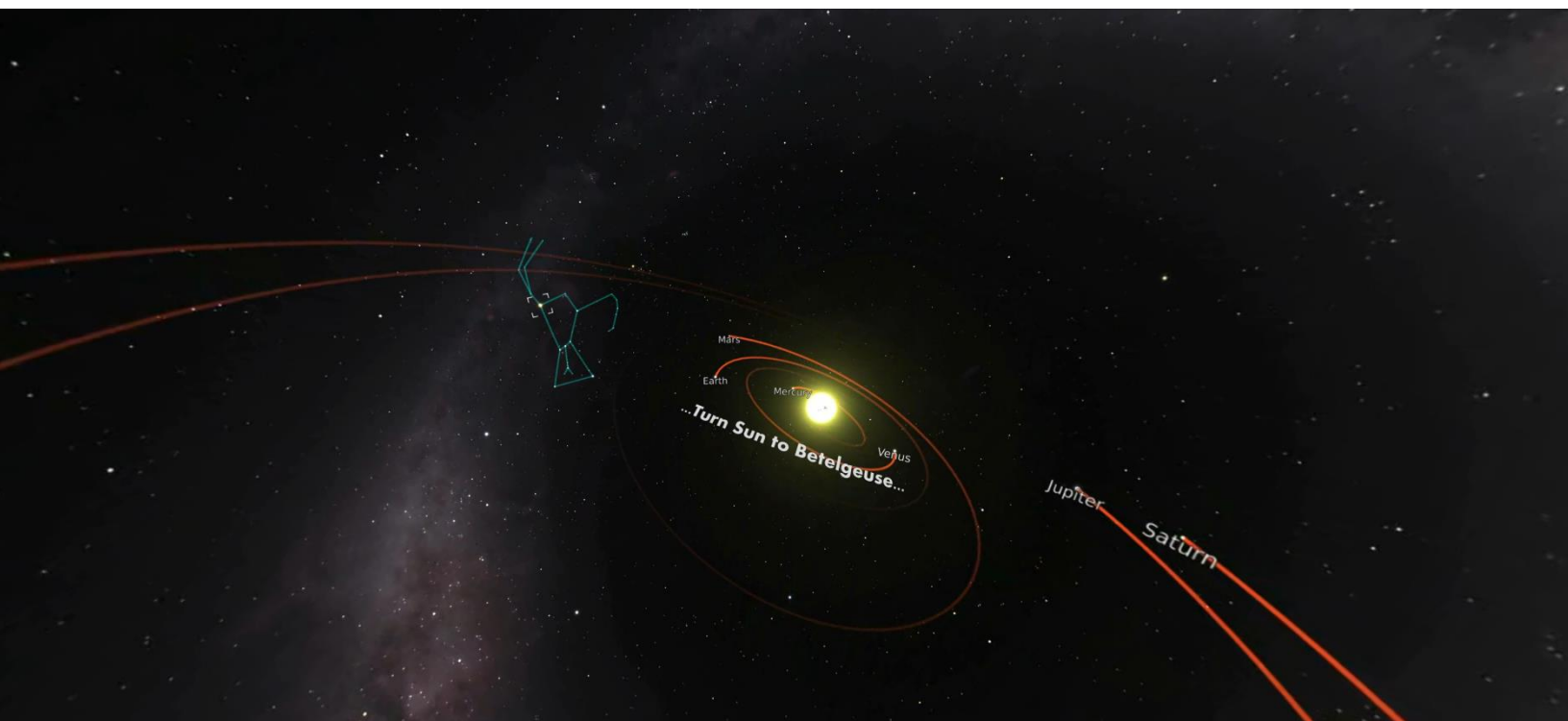
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## PARTNERSHIP WITH THE AAVSO

Planetarium staff continue to expand our community outreach to the national and global levels. In 2021, Brown Planetarium staff are creating [monthly planetarium episodes on variable stars](#) alongside the American Association of Variable Star Observers (AAVSO), and the International Planetarium Society (IPS). These episodes expand the library of planetarium shows developed at Ball State, which can be played on any digital planetarium software, allowing worldwide distribution and engagement.

**Through this partnership, the IPS has been able to offer its members quality programming in the form of monthly released, short planetarium segments. The IPS has been exceedingly pleased with the quality of these productions.**

-IPS Leadership



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## TECHNOLOGY & PROGRAM UPDATES

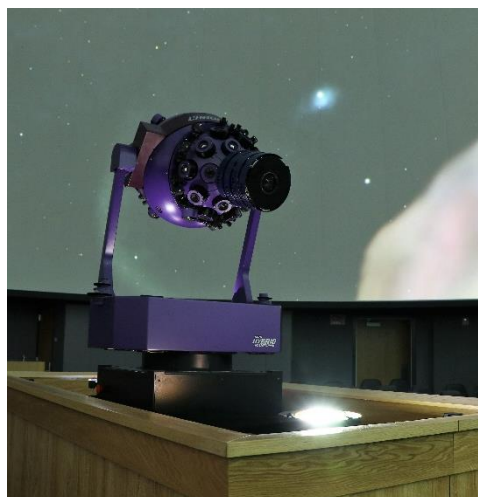
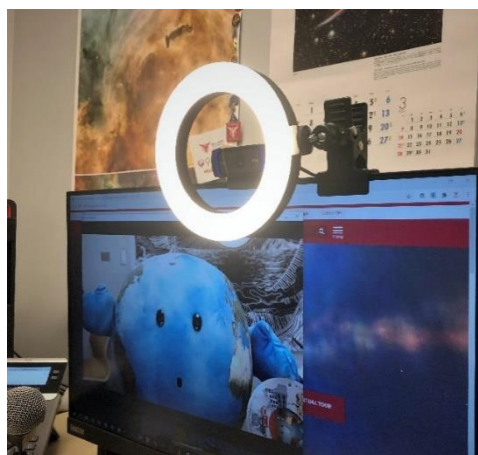
With our programs going virtual, we updated our equipment to include green screens, webcams, and special lighting.

Two new laser inset projectors and computers were installed in the dome and will help display quality pre-show content as well as visuals for special programs and guest speakers.

New projector lamps were installed in January 2021 in our fulldome planetarium projectors. Shows can now be viewed in amazing detail and brightness on our 16-m dome. Additionally, our 5.1 digital surround-sound system was refurbished, further enhancing the quality of our programs.

The National Informal STEM Education Network delivered new hands-on, minds-on, and hearts-on activities to us. They are unpacked and ready to be used once we can safely setup our popular activity stations.

We purchased the new fulldome planetarium program *Big Astronomy* that explores the people behind the amazing science done at large observatories. This will be offered to the public during the Summer of 2021.





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## STUDENT UPDATES FROM ONE BALL STATE DAY

Ball State undergraduate and graduate students make all of the events at the Brown Planetarium possible. Without their energy and commitment, we would not be able to offer the amount of public and private programming that we do here at Ball State.

For One Ball State Day 2021, we heard from our current and former students about their time working in the Brown Planetarium...

### **Charles W. Brown Planetarium** **oneballstate.bsu.edu/planetarium**

*"While at Ball State, I had the privilege of working in the planetarium - one of my favorite college experiences. Working there helped me develop a number of skills that I still use every day. Giving science demonstrations and private showings built up my confidence and public speaking ability which has helped me in my current job, presenting my ideas clearly to others. The technological and creative freedom served me well, and now I am not afraid to create my own solutions to a problem. Working at the planetarium gave me the opportunity to share my love of astronomy with others. I am asking you to please support the planetarium and its student workers so it can continue to lead the way in scientific engagement on campus and in the community."*

**Paul Hettinger, MS '18**  
Physics & Astronomy  
Geodetic Orbit Scientist



### **Charles W. Brown Planetarium** **oneballstate.bsu.edu/planetarium**

*"I now work on a NASA funded mission that's orbiting the moon and taking some fantastic pictures of its surface! While at Ball State, I studied Meteorology and minored in Astrophysics. As a worker at the Planetarium, I refined my public speaking skills. I thought I was a good speaker, but speaking in front of a hundred people can be another thing entirely! It also was a great way to learn how to engage the public in science. These experiences were so important because I use these skills in my current job! I often talk to the public about lunar science and the mission I work on! I hope you can help support the Charles W. Brown Planetarium and its student workers as they continue in their own mission to create great experiences for the public and foster student workers' speaking and science advocacy skills!"*

### **Jessica Walsh, BS '19**

Controlled Mosaics Team Lead  
Lunar Reconnaissance Orbiter Camera  
Science Operations Center



When you give,

*We Fly*

4.6.2021



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**When you give,**

*We Fly*

**4.6.2021**

*"During my four years at Ball State and working at the Brown planetarium, I unexpectedly discovered I wanted to be an informal science educator. I was immediately hooked on the inner workings of a planetarium's technical side - astronomy, programming, etc. While that was important to my own goals, my experience allowed me to blossom in ways not directly related to STEM. I was able to learn and grow my professional development, public communication skills, and connect with a variety of communities - most importantly my own. These experiences molded me into a successful person regardless of my STEM career. By supporting the planetarium, you do more than just benefit STEM students attending BSU - you promote inquiry-based learning, transformative experiences, and a sense of wonder. This is your chance to help grow our community and take us all to new heights."*

**Sarah Vise, BS '19**

Physics & Astronomy

Science on a Sphere Coordinator,

Science Central in Fort Wayne



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**When you give,**

*We Fly*

*"The BSU Physics & Astronomy Department equipped me for the next step in my academic career. Presenting planetarium shows to audiences of all ages provided the experience of expressing scientific ideas to the general public... a vital skill for all scientists! Additionally, my involvement in the planetarium solidified astronomical concepts that equipped me to carry on to astrochemistry at the University of Virginia where I am currently pursuing my PhD. I am so thankful for the professionalism and leadership skills I learned during my time as a graduate assistant. The Brown planetarium gives so much to the community (especially with their free weekend shows!) so I ask that you all consider giving back!"*

**Brielle Tilson, MS '20**

1st Year Graduate Student

Computational Astrochemistry

Department of Chemistry

University of Virginia



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When you give,

*We Fly*

"I have had two experiences at Ball State, which I will take with me everywhere I go: operating large telescopes during my research and working with the Brown planetarium. As a part of the Constellation Crew, I was able to practice public speaking on a weekly basis and see a little of the behind the scenes work that goes into producing planetarium shows. These skills will be invaluable while I move on to pursue a doctorate in Physics at the University of New Hampshire. I hope you will be able to support the Brown Planetarium so future students can enjoy the same experiences I've had here."

**Richard Gorby, MS '21**  
**Physics**



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When you give,

*We Fly*

"Working at the planetarium has been an amazing experience for me. While here, I have grown more comfortable with public speaking and fostering scientific inquiry for those patrons who watch our shows. It has allowed me to share my love for astronomy and has helped me gain experience in explaining astronomical phenomena to the general public. These are things I hope to carry with me in a future career of exploring our universe. I hope everyone will continue to show their support to the planetarium by watching our shows both online and in person."

**Caleb Whitcomb, '22**  
**Physics**





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When you give,

*We Fly*

"Ever since I was little, I have always had questions about our universe. After years of bombarding my family with these questions, I decided to peruse a career in astronomy. So far, I have learned so much! But I felt that I needed more. Which is why I decided to work at the Brown Planetarium. After I started getting some of my questions answered, I realized that I wanted to be able to provide others with what I couldn't have until I reached higher education. Science is for everyone, not just for the "brainiacs." And I feel that is what the Brown Planetarium is all about."

**Nicolette Terracciano, '23**  
Astronomy & Physics



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When you give,

*We Fly*

"So far, working in the planetarium has helped me to hone my presentation skills in an informal setting, and also has reinforced the importance of being prepared through work with the Constellation Crew. I learn something new with every show I work with, and that never fails! The importance of the support we receive from you cannot be overstated, as it helps enable us to continue our goals."

**Greg Gallagher, MS '23**  
Physics





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