

A photograph of a man with glasses and a woman looking at a globe in a classroom setting. The man is on the left, leaning over the globe, and the woman is on the right, looking at the globe. The globe is in the foreground, showing the Americas. The background is a classroom with white walls and a door. A large, stylized title is overlaid on the image.

KEEPING A STELLAR CONNECTION WITH EMBRY-RIDDLE

ERAU's Dr. Jason Aufdenberg teaching guests about Mars at the annual MOAS Space Day in April 2017.

The Museum of Arts & Sciences is very fortunate to be in Daytona Beach. Not only is this relatively large beach-side city flourishing with its steady stream of new businesses and major community projects underway, it has also developed an academic presence that is impactful on the world stage.

A major reason for this is due to Embry-Riddle Aeronautical University (ERAU). This world-class aviation, engineering, and aerospace institution is now a foundational aspect of Daytona Beach, situated less than a mile away from the MOAS campus. Its close proximity and alignment with the science aspect of MOAS has ignited a close partnership, especially with the Planetarium Department.

This partnership has taken many different forms over the years, however it has steadily been evolving and growing (it does not hurt that I am an Embry-Riddle Alumnus) in new directions that has benefited the community in lasting ways.

An immensely fulfilling and effective collaboration has been the Museum's continued devotion to each institution's public outreach events.

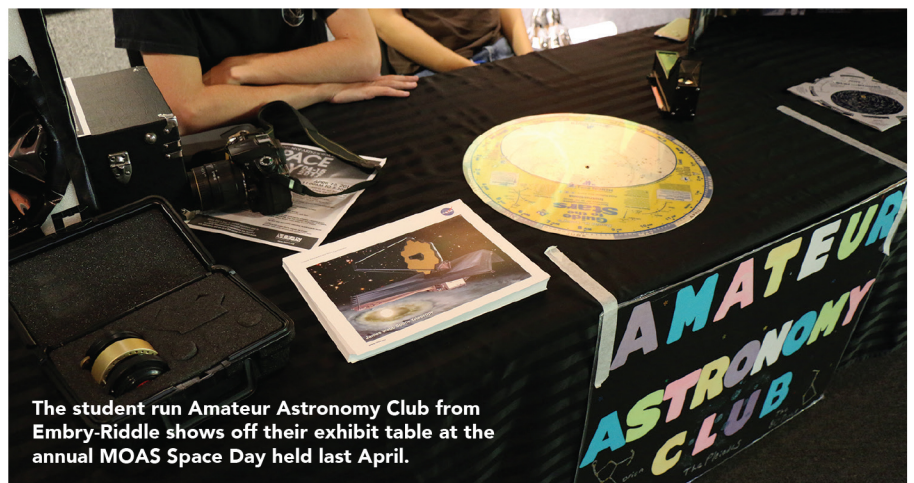
About three times per semester, ERAU's Amateur Astronomy Club hosts their Astronomy Open House – an evening of stargazing, telescope observing, hands-on astronomy activities, and lectures, all held in their beautiful Arts & Sciences building that boasts a one-meter reflecting telescope on the roof. For the last ten years the Museum has supported this hugely popular event by helping work their telescopes and by bringing over the Museum's equipment to help the public observe the beauty of the night sky. This has been a spectacular way for us to engage with the hundreds of visitors that come to this event, and to promote what the Planetarium is doing here at MOAS. In turn, we have been able to advertise the Open

House's in the Planetarium over the years to maintain this cross-promotional support we have developed (visit <https://observatory.db.erau.edu/index.php/astronomy-open-house> for more information).

The Museum's portable Planetarium has also been utilized at ERAU for their Astronomy Open House and a couple of their Yuri's Night events that celebrate the cosmonaut, Yuri Gagarin, and his first trip to space for humanity. It has always been a treat for the Museum to be able to share the wonders of astronomy with college students from the University in a portable dome setting.

On many occasions, we have had overwhelming support from ERAU students and faculty for our own events and outreaches. For our star parties we have held throughout the county, including at our very own Gamble Place property in Port Orange and the lighthouse in Ponce Inlet, we have relied on Embry-Riddle's Amateur Astronomy Club members to bring telescopes and lend a helping hand at teaching alongside our various hands-on astronomy stations that we bring.

For the last three annual Space Day events held each spring right here at MOAS, we have seen not only the Astronomy Club's support, but a whole slew of other clubs, student organizations, and professors participate. The Embry-Riddle Future Space Explorers and Developers Society (ERFSEDS) has participated each year by setting up an exhibit table with their impressive rockets that their student members have built. ERFSEDS members were even able to speak



The student run Amateur Astronomy Club from Embry-Riddle shows off their exhibit table at the annual MOAS Space Day held last April.

A member of ERAU's ERFSEDS rocket club discussing the work they do to a visitor at our annual MOAS Space Day held last April.



during the first Space Day event in 2015, when they presented on projects they have accomplished. During the 2016 Space Day, we were privileged to have two members from the University's Mars Desert Research Crew – who spent two weeks in early 2016 in Utah – simulating a Mars mission by conducting field research in an isolated facility in the desert. We have also seen support from the Space Sciences, Policy, and Operations Club (formerly Commercial Space Operations Club), where they have highlighted the work that students do in the newly formed Commercial Space Operations degree program.

During our most recent Space Day this past April, we had graduate student, Maggie Gallant (former Astronomy Club President) present, *The Life of an Astronomy Student*, in the Planetarium. She discussed her experiences working with ERAU's large rooftop observatory and what it takes to study astronomy and physics in college.

A major collaboration that we have established, especially in the new Planetarium, has been with many prominent ERAU professors who have given amazing talks on space and astronomy topics.

A great friend and colleague of the MOAS Planetarium is Dr. Jason Aufdenberg, Associate Professor of Physics and Undergraduate Program Coordinator at

ERAU. He has presented his research, *Seeing Double with Spica*, discussing the challenges of accurately measuring this binary star system in the constellation Virgo, as a general lecture for our guests and again for a symposium we held for planetarium professionals last March.

Dr. Aufdenberg has worked closely with our Planetarium Department in bringing over students from his History of Astronomy class the last two fall semesters to conduct an overview of basic night sky observing principles. The Museum was able to utilize the powerful Planetarium software to create a custom program that would allow Dr. Aufdenberg to teach effectively in the immersive environment.

Before the summer of 2016, the Museum again worked with Dr. Aufdenberg on a joint 3D space poster exhibit that was put on display in the Planetarium lobby for the summer. The Museum supplied red-cyan glasses to visitors to appreciate the images in a 3D perspective. For this collaboration, Dr. Aufdenberg secured funds from the NASA Florida Space Grant Consortium to pay for large format image prints and MOAS supplied museum-style labels to accompany them.

To discuss the human element in space, the Museum hosted Dr. Jason Kring, Associate Professor of Human Factors and Systems, ERAU, in the Planetarium on numerous occasions. His engaging presentations have helped our audiences understand what it takes to be an astronaut and the hardships and challenges they face living and working in space. Dr. Kring has been kind enough to present during the 2015 Space Day as well as the lecture series that went along with our most recent space exhibit, *NASA Innovations: How Space Technology Shapes Our Everyday World*.

The Museum has also had the opportunity to work with the Chair of the ERAU Physical Sciences Department and Professor of Engineering Physics, Dr. Terry Oswalt. MOAS first worked with Dr. Oswalt in early 2015, when he graciously brought over Nobel Laureate, Dr. John Mather, the Senior Astrophysicist in the Observational Cosmology Laboratory at NASA's Goddard Space Flight Center. To a packed Planetarium audience, Dr. Mather spoke on his Big Bang research with the COBE spacecraft that won him a Nobel Prize in Physics in 2006. He also discussed the next generation space-based observatory, the James Webb Space Telescope, that will look deeper into our universe than ever before.



ERAU's Dr. Terry Oswalt speaking in the Planetarium about Pluto during our Pluto-Palooza event held in July 2015 to celebrate the flyby of the New Horizons spacecraft.

In July of 2015, ERAU's Dr. Oswalt came back to the Planetarium to speak during the Museum's Pluto-Palooza event to celebrate the first spacecraft flyby of Pluto by the New Horizons spacecraft. As a member of the International Astronomical Union, and someone who voted Pluto to its dwarf planet status, Dr. Oswalt had great insight into the mission and what this little world is all about in his talk titled, *Why I Helped Kill Pluto and Why It Had It Coming*.

These vital collaborations have helped MOAS bring real science – and the people in the trenches doing the science – out in the public eye in engaging and immersive ways through the Planetarium.

One of the most meaningful connections that MOAS has maintained through the years are the Embry-Riddle students that have been hired as Planetarium staff members. On our staff are those who are studying all types of STEM related degrees like Commercial Space Operations, Engineering Physics, Human Factors, and Aeronautics. This has been a great way for the Museum to keep up-to-date on the current climate of space, as well as to inspire individuals who are striving to work in the space industry, providing them a platform to relay what they have learned to the public.

This strong connection with Embry-Riddle has served as a major supporter of the Planetarium's success since its opening. This vital connection between ERAU and MOAS will only get stronger, and we hope that this bond will carry forward into the future with new and exciting projects and collaborations to come.

Seth Mayo, Curator of Astronomy at left is standing next to Nobel Laureate, Dr. John Mather, who was invited to speak in the planetarium by ERAU's Dr. Terry Oswalt at right.

