

SUSTAINING MEMBER

# UNIVERSITY OF CENTRAL FLORIDA

## UCF Fuels America's Space Program with Innovative Education, Medicine and Tech

UCF is advancing cutting-edge space research while offering unique opportunities for students to launch their careers in the space industry.

The University of Central Florida is driving advancements in space technology, medicine and workforce development while preparing students to lead in the evolving space industry. Founded in 1963 to support the growing U.S. space program, UCF remains committed to space-related innovation and education.

With more than 40 active NASA projects totaling over \$67 million in funding\*, UCF is shaping the future of humanity's presence in the cosmos.

Here are some of the areas of Space where UCF is leading:

### **Space Medicine**

UCF's College of Medicine researchers are studying the effects of microgravity on bone health, developing radiation protection therapies and creating antimicrobial solutions for spacecraft.

### **Space Propulsion and Power**

The university's HyperSpace Center advances hypersonics and space propulsion, while other projects focus on storable chemical heat sources for spacecraft exploring extreme environments like icy moons and Venus.

### **Space Technology and Engineering**

UCF researchers are developing lunar and deep space technology, including 3D-printed bricks from lunar regolith for off-world habitats and CubeSat technologies that enable affordable space exploration. This also includes technologies developed by UCF planetary scientist Phil Metzger to extract lunar ice and a magnetic process to sinter moon soil into construction materials. Metzger's technologies can reduce energy costs, enable sustainable moon-based operations and limit the impact on Earth's environment.

### **Space Commercialization**

UCF's space commercialization program, led by Greg Autry in UCF's College of Business, is preparing students for careers in the expanding commercial space industry. Initiatives include Executive and MBA programs focused on space business, collaborations with NASA, SpaceX, and Virgin Galactic, and partnerships to expand Florida's leadership in space exploration.

### **Space Domain Awareness**

UCF researchers are helping track space debris to prevent collisions and enhance orbital safety while also promoting public awareness about debris impacts.

### **Workforce Development**

UCF programs, like the engineering graduate certificate in electronic parts engineering that was developed with NASA, and FSI's CubeSat initiative provide students with essential skills for the space industry. Likewise, the Stephen W. Hawking Center for Microgravity Research and Education offers opportunities in microgravity research and robotics. UCF's Exolith Lab is home to the NASA's Lunabotics qualification challenge, where teams from all over the country deploy robots capable of using lunar regolith in a simulated lunar environment.

### **Planetary Science**

UCF is leading NASA's \$35 million Lunar-VICE mission to the moon to study volcanic lunar domes and is also part of NASA's Lunar Trailblazer mission to map water ice. Its researchers have been part of major NASA missions, including the OSIRIS-Rex mission to asteroid Bennu, Cassini, Mars Pathfinder, Mars Curiosity and New Horizons. UCF researchers are also using the James Webb Space Telescope to analyze solar system ices and search for exoplanetary life.

### **Advancing Astrophotonics and Policy**

UCF's astrophotonics research combines photonics and astronomy to explore cosmic phenomena, while its space history and space policy studies examine the cultural impacts of space exploration and the legal frameworks shaping its future.

### **Looking to the Future**

As the new space race continues, UCF will continue to tackle the challenges of space exploration and help ensure that space is accessible to all.

\*As of October 2024