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# HOW AL NEYADI'S MISSION WILL UNFOLD

Here's an overview of how Crew-6 will be launched into space and what they will do on ISS

**DUBAI**  
BY SAJILA SASEENDRAN  
Senior Reporter

**T**he UAE is one step closer to its historic second astronaut mission with the SpaceX Falcon 9 rocket and the Dragon Endeavour spacecraft, which will carry Emirati astronaut Sultan Al Neyadi and his Crew-6 colleagues, being rolled out to the launchpad in Florida yesterday.

SpaceX announced that the rocket was rolling out of the hangar at Launch Complex 39 A at NASA's Kennedy Space Centre.

"Team is completing pre-flight checkouts and setting up for no earlier than Sunday, February 26 for launch of Starlink; launch of Crew-6, which has priority, is currently targeted for Monday, February 27," SpaceX tweeted, revealing its focus on the Crew 6 mission over its satellite internet constellation. "If weather and all other aspects of Crew-6 are go, we'll stand down from Sunday's launch attempt of Starlink," it added.



**6 months**  
duration of Al Neyadi's International Space Station mission

**10.45 am**  
UAE time is when the rocket will lift off on February 27

**What happens next?**

Once rolled to the pad and raised to vertical position, the integrated spacecraft and rocket undergoes an integrated static fire test which is scheduled today for the launch attempt on Monday. The static fire test is a vehicle ground test to check the whole pre-flight process and detect any potential issues.

Once it is all clear, there will be a dry dress rehearsal with the crew prior to the launch.

The target launch now is at 10:45am UAE time on February 27. The backup launch dates are February 28, March 2,3 and 4. Closer to the launch date, weather challenges will also be looked into for finalising the lift-off schedule.

**Post lift-off**

Once lifted off from Launch Pad 39A, Dragon Endeavour will accelerate its four passengers to approximately 17,500mph, putting it on an intercept course with the space station, according to Nasa.

Once in orbit, the crew and SpaceX mission control in Hawthorne, California, will monitor a series of automatic maneuvers that will guide Endeavour to the space-facing port of the station's Harmony module.

After several maneuvers to gradually raise its orbit, Endeavour will be in position to rendezvous and dock with its new home in orbit. The spacecraft is designed to dock autonomously, but the crew can take control and pilot manually, if necessary.

**After docking**

After docking, Crew-6 will be welcomed inside the station by the seven-member crew of Expedition 69.

Al Neyadi is set to become the flight engineer for Expedition 69 once aboard the ISS.

The astronauts of NASA's SpaceX Crew-5 mission will undock from the space station and splash down off the coast of Florida several days after Crew-6's arrival.

Crew-6 will conduct new and exciting scientific research to prepare for human exploration beyond low-Earth orbit and benefit life on Earth. During their stay aboard the orbiting laboratory, Crew-6 will see the arrival of cargo spacecraft including the SpaceX Dragon and the Roscosmos Progress. Crew-6 also is expected to well-



The Dragon Endeavour spacecraft mounted on the SpaceX Falcon 9 rocket.



*Team is completing pre-flight checkouts and setting up for no earlier than Sunday for launch of Starlink; launch of Crew-6 is targeted for February 27.*

**SpaceX statement**



How Al Neyadi went from Al Ain boy to 'Sultan of Space'

come the agency's Boeing Crew Flight Test astronauts and the Axiom Mission-2 crew carrying two Saudi Arabian astronauts during their expedition.

**After six months**

At the conclusion of the mission after six months, Dragon Endeavour will autonomously undock with the four crew members aboard, depart the space station and re-enter Earth's atmosphere. After splashdown just off Florida's coast, a SpaceX recovery vessel will pick up the crew, who will be helicoptered back to shore.



From left: Crew-6 members Andrey Fedyaev, Sultan Al Neyadi, Warren Hoburg, and Stephen Bowen at the Kennedy Space Centre in Cape Canaveral, Florida. AFP

**CUTTING-EDGE TECHNOLOGY**

## Al Neyadi will conduct several experiments

**DUBAI**  
BY SAJILA SASEENDRAN  
Senior Reporter

**T**he UAE's second astronaut Sultan Al Neyadi, who is just days away from lifting off for the first Arab long-duration mission aboard the International Space Station (ISS), will conduct several scientific experiments along with the other Crew-6 astronauts.

According to Nasa, over 200 science experiments and technology demonstrations will be carried out during the six-month mission to the ISS. Al Neyadi will conduct at least 20 experiments, apart from doing maintenance work on the orbiting station. Al Neyadi is a mission specialist who is set to become the flight engineer for Expedition 69 once aboard the ISS.

Nasa astronauts Stephen Bowen (spacecraft commander) and Warren Woody Hoburg (pilot) and Roscosmos cosmonaut Andrey Fedyaev (mission specialist) are joining him on the mission.

The scientific projects that the team would carry out span a wide range of disciplines—from life and physical sciences to advanced materials, technology development, in-space production applications, and even student-led research.

"Results from these studies will bring value to humanity, further our ability to explore, and enable a robust market in low Earth orbit," stated ISS National Laboratory which will sponsor dozens of these investigations.

**Top 10 topics**

The UAE's Mohammed Bin Rashid Space Centre (MBRSC) in Dubai has now released the top 10 topics covered in the scientific experiments that will be part of the first Arab long-duration space mission.

The fields of experiments include: Cardiovascular system, epigenetics, plant biology, radiation, back pain, immune system, materials science, sleep analysis, fluid science and technical demonstration.

Adnan Al Rais, mission manager, UAE Astronaut Mission 2, said the scientific community in the UAE, including researchers and students, will take part in the mission through an educational and outreach programme. Immune system

The Crew-6 will test a new tool for immunity monitoring, said Nasa. Immunity Assay, an investigation from ESA (European Space Agency), uses a functional immune test to monitor how spaceflight stressors affect cellular immune functions. Until now, this test could only be accomplished on Earth and was conducted pre- and post-flight.

**New tool for immunity monitoring**

A newly developed assay tube makes it possible to execute the test inflight, which could provide a clearer assessment of the immune changes that happen in flight and help inform development of countermeasures. The body's ability to defend against infections shows clear changes in response to simulated microgravity or confinement on Earth that appear to be associated with stress.

Along with blood samples and saliva collections, the new test could be used to monitor stress-related immune performance during space missions and in settings on Earth.

**Heart tissues, bioprinter**

Speaking after landing at the Kennedy Space Centre in Florida,

where the launch will take place, Al Neyadi on Tuesday night spoke about the experiments on heart tissues as one of the most exciting ones.

"One very interesting experiment that I'm looking really to see is seeing the heart tissue beating in space. So this is something like a cutting-edge technology that one day we can [use] when we start 3D-printing organs... This is really important to see how the structure is built in microgravity. So this can give us a really good insight how these tissues are built."

**New therapeutics**

Two investigations from the ISS National Lab and the National Institutes of Health (NIH) Tissue Chips in Space initiative will launch in the coming weeks, both studying heart muscle tissue in microgravity to better understand heart disease and test new potential therapeutics, said ISS National Lab.

Another study will test an updated bioprinter capable of printing human cells and tissues in microgravity that may one day be used to treat patients on Earth.

**research in materials science**

Al Neyadi on Tuesday night also spoke about research in materials science.

"We're going to test fluidics, we're going to test the materials and how they burn in space. And this is for the future missions when we go into the lunar surface again or going into another planet. So we need to test materials and how they react in microgravity and different atmospheres, let's say on Mars, for example. So a lot of excitement... I'm really excited to conduct a lot of [scientific experiments] and communicate whatever we have back to the people on earth."



**The fields of experiments include: Cardiovascular system, epigenetics, plant biology, radiation, back pain, immune system, materials science, sleep analysis, fluid science and technical demonstration.**

**Advanced training**

He pointed out that all the crew members had received training in cutting-edge technologies during their preparation for the mission. "We are all trained to conduct a lot of [scientific experiments]. And we'll be the hands, the eyes, the ears of the scientists who are working for years for a specific experiment. Some of the experiments are ongoing, some of them are ending soon and some of them are just starting," he said.