



SPACE TREK



**NEAR SPACE
INVESTIGATION**



Space Trek Academy (Spring 2026)

In this program, 14 college students will participate as one large team, with smaller technical units to successfully launch and retrieve a weather balloon, with a payload that travels up to 100,000 feet.

Students will learn about subjects such as meteorology, telemetry and how NASA takes different variables into account to perform missions, very similar to these. They will also learn about payload integration and how to plan and efficiently carry out a balloon launch.

The flight computer will be designed to interact with 3 PODS (portable experiment computers) that can be programmed to connect with 10 sensors each.

Over a period of 4 days, the group will aim to design and construct 4 different experiments to make observations in the upper atmosphere and throughout the flight of the weather balloon.



The group will work on independent teams with students assigned to different positions similar to those used by NASA, including Flight Director, Safety Officer, Payload Integration, Launch Operations, and Meteorology. Instructors will train students to perform their tasks and then assist in operations as the students take lead. Emphasis is on communication amongst teams and to follow their roles to achieve a successful launch and recovery.

Students will develop a payload to be sent on the weather balloon conducting experiments and gather results as it ascends and descends through the atmosphere.

Flight Computer will have:

- 1 external temperature sensor that works from -75C to 125C & Payload Temperature Sensor
- humidity sensor, pressure sensor, barometer altitude sensor
- 4 UV sensors
- Gyroscope, Accelerometer & Compass Sensor
- GPS

Pods can accept 5 I2C sensors (of the same kind or different), 4 digital and 4 analog sensors.

They will also learn how to test equipment, use checklists, and prepare all the components for the final launch. The main equipment is the flight computer, which has the capability to record variables such as humidity, pressure, temperature, velocity, and altitude.

As the balloon travels through the atmosphere, the flight data will be constantly transmitted to our facility at KSCVC where students can watch a live feed on a map of the balloon flight. Alongside this data students can correlate the behavior of their experiment to draw possible conclusions.

AES, Inc. will provide the following:

- Selection process for students and the experiments they will build.
- 2 Skype Sessions to help the participants finalize the experimental payloads
- 4 days of Near Space Investigation Program at the Center for Space Education, Kennedy Space Center
- Accommodation for 3 nights at a Cocoa / Titusville hotel
- Arrange Speaker during graduation of the program
- 4 lunches, 3 dinners during the 4 days visit to CSE

Program Costing

- ▶ Payload & Launch Cost = \$5,925
- ▶ Payload Experiment Components for student teams = \$850
- ▶ Center for Space Education Session: 14 students x \$145 (per student) x 4 days = \$8,120
- ▶ Personnel Hours and Expertise (\$150 per hour for 3 hours) = \$450 (2 Personnel for Skype Sessions)
- ▶ Annual Passes for KSCVC (\$159.43 x 14) = \$2,232.02
- ▶ Meals: 14 people x \$16 x 4 days (Lunches) = \$896
- ▶ Total Cost: **\$18,473.02** per program
- ▶ Dates of Program: Spring 2026

—by



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Monday, December 29, 2025