



NEW
HEIGHTS
NEW
HORIZONS

NMSU
ATOMIC AGGIES

SPONSORSHIP PACKET

2025-2026





1. Who we are

The NMSU Atomic Aggies is a multidisciplinary student organization dedicated to advancing rocketry education and innovation. We are a chartered chapter of the National Association of Rocketry, partner with the NMSU College of Engineering, and compete annually at the International Rocketry Engineering Competition (IREC) formerly known as the Spaceport America Cup, the world's largest collegiate rocket competition.

Team Demographics

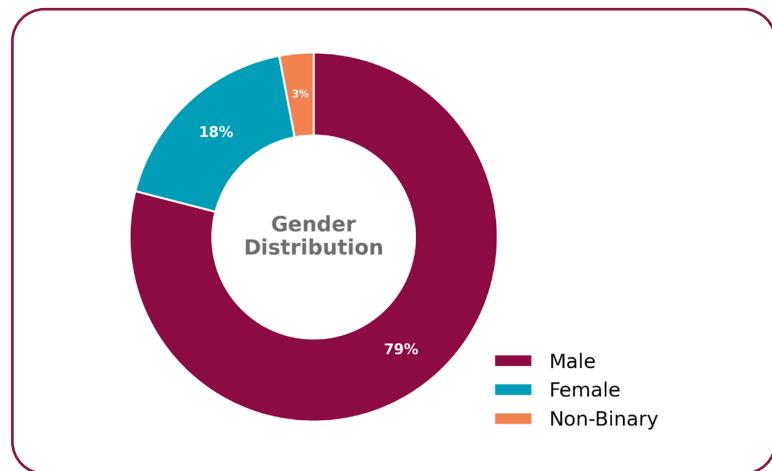


Figure 2 : Gender

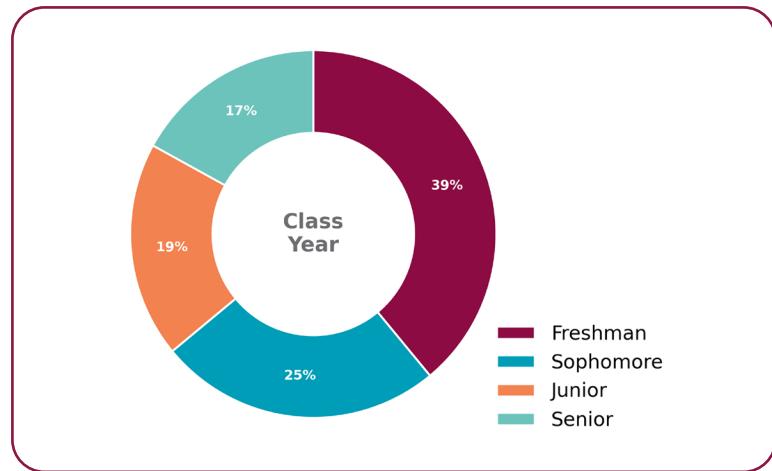


Figure 3 : Class Year

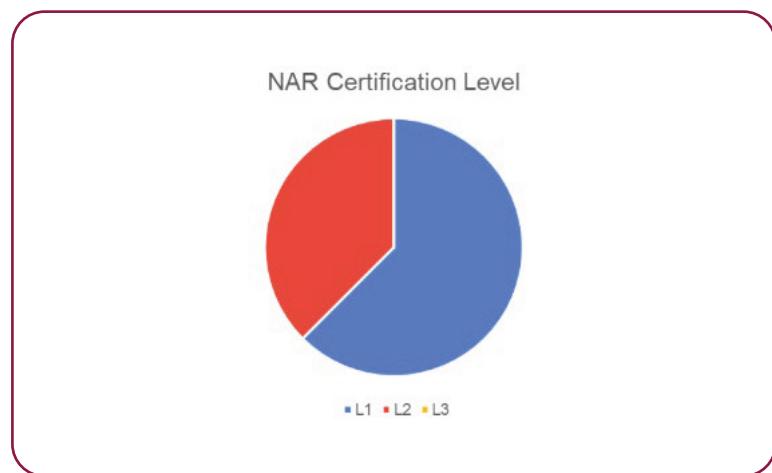


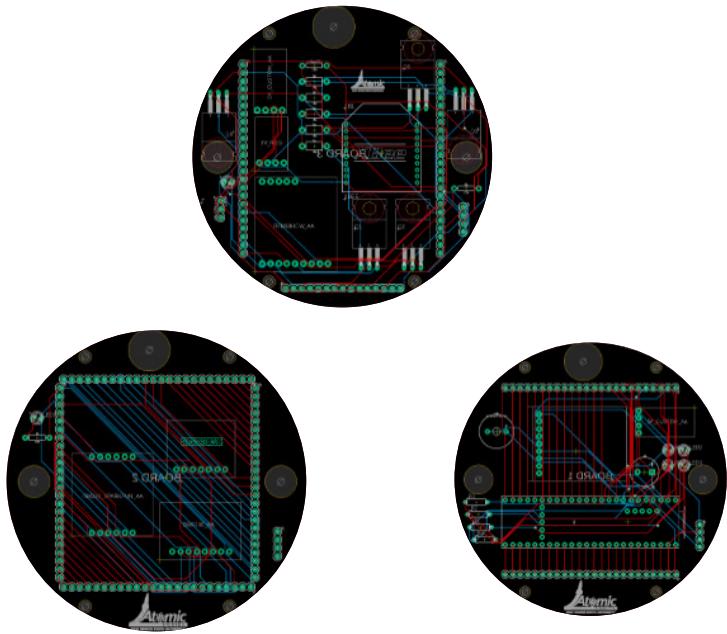
Figure 4 : NAR Certificate Level



2. Our Mission and Impact

Our mission is to design, build, and launch high-performance rockets that advance student engineering skills and represent NMSU on the national stage at the International Rocket Engineering Competition (IREC) 2026. Sponsors directly enable hands-on STEM education and inspire the next generation of aerospace innovators.

3. Meet the Teams



Custom Printed Circuit Boards
Designed In House

3.1 Avionics Team

The Atomic Aggies Avionics Team is responsible for designing, building, and operating the electronic systems that power and monitor the team's rockets. This includes developing custom flight computers, telemetry systems, and ground-station interfaces that collect real-time data such as altitude, GPS position, velocity, orientation, and environmental conditions throughout the flight. The team integrates sensors, microcontrollers, and communication modules into a compact and reliable avionics bay, ensuring seamless operation under high-stress launch conditions. The Avionics Team also creates software tools for data visualization, mission analysis, and recovery tracking. Their work bridges electrical engineering, computer science, and aerospace disciplines.



Figure 4: Fabrication of Version 1 Flight computer and telemetry system. Starting with custom designed Printed circuit boards and soldering on all necessary components.



Figure 5: Antenna Testing at the IREC Competition to ensure a stable data link between the rocket and the ground.

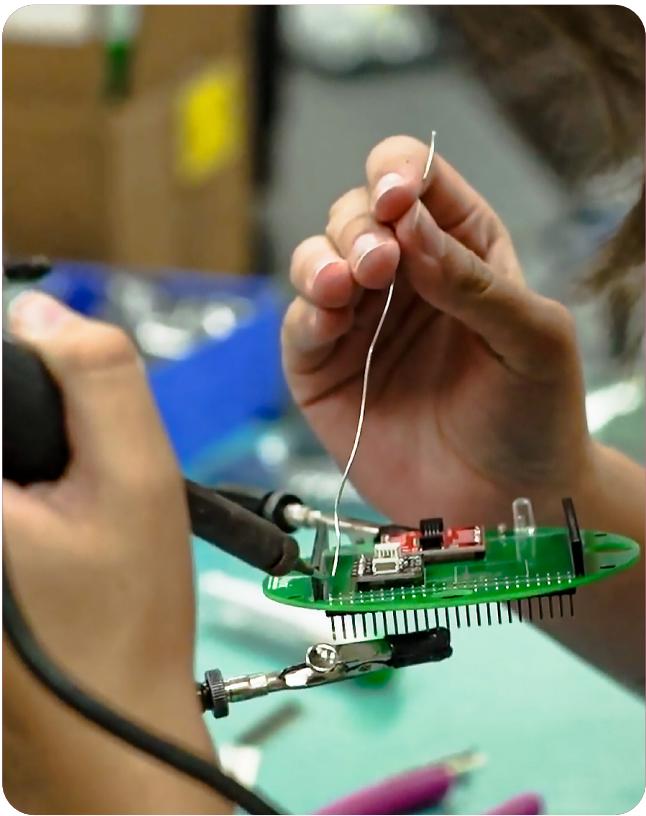


Figure 6: Soldering components on SRAD Flight Computer.

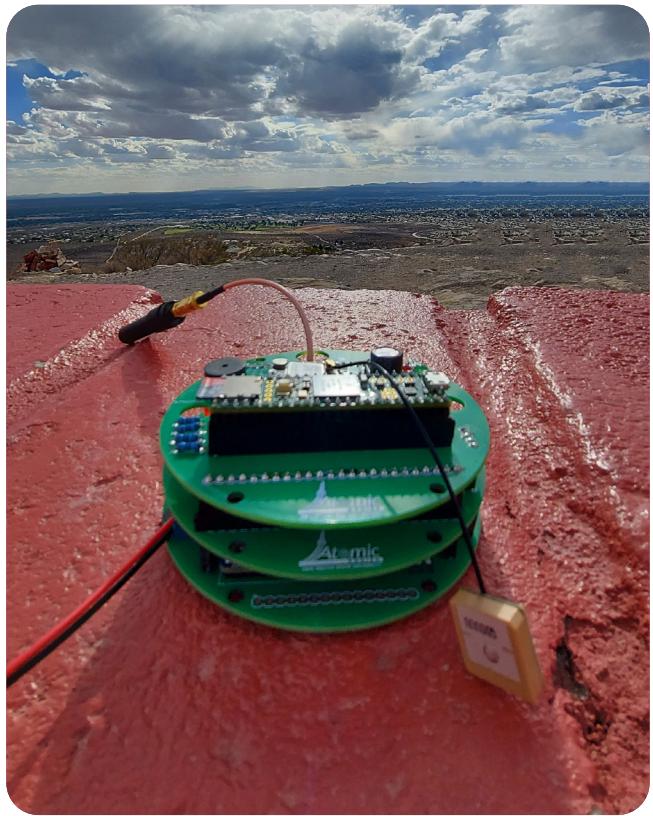


Figure 7: Version 1 of our custom flight computer and telemetry System.

3.2 Manufacturing Team



Atomic Aggies' manufacturing team fabricates composite airframe components from carbon fiber and fiberglass. Our manufacturing techniques use wet layups with epoxy over mandrel tubes, in-house molds, and plates to create nearly every structural component of the rocket. Once every part has been manufactured into an aerospace grade component, post process manufacturing is performed to assemble and integrate the full structure!

Along with fabricating and manufacturing airframe components, this team also works with other sub-teams in assisting them in any projects they work on. From creating CAD files to waterjet components to helping assemble different systems, this team works on all parts of the rocket.

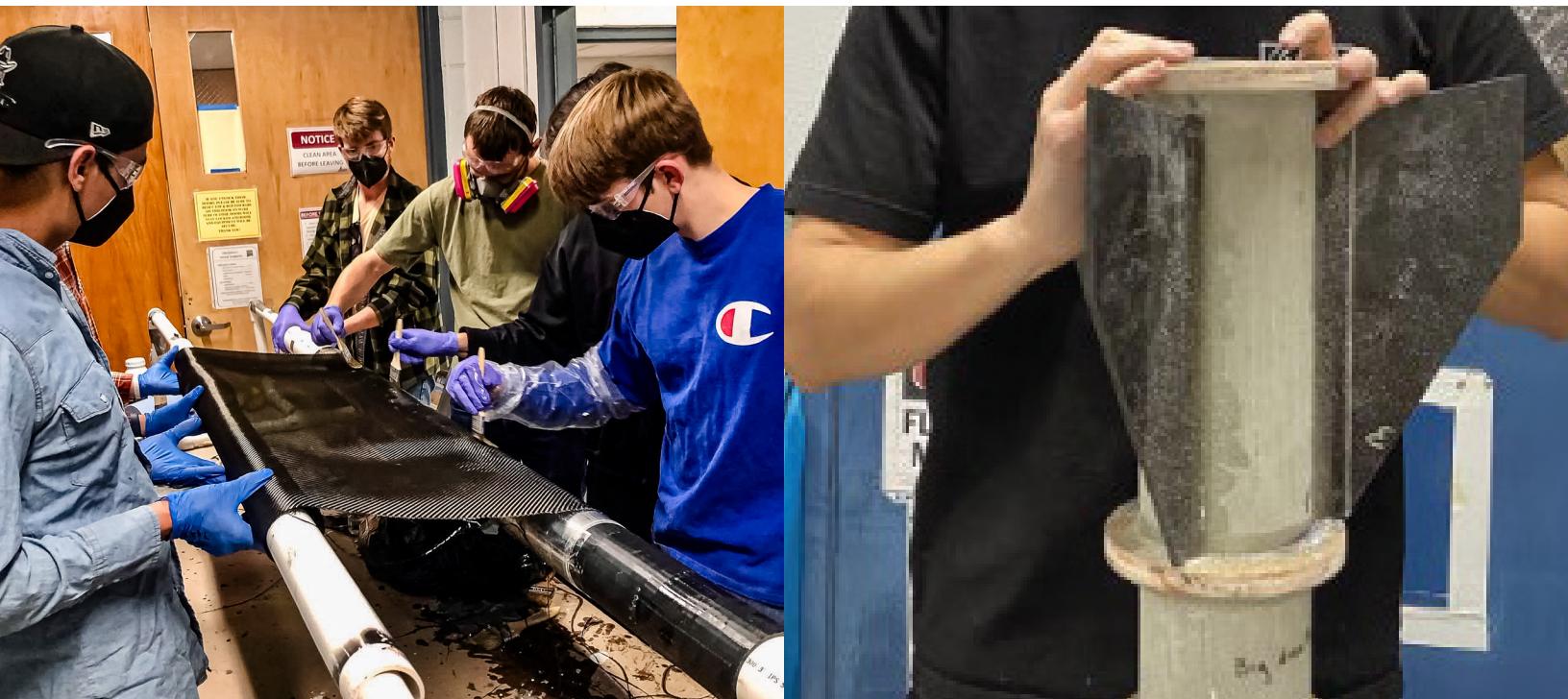


Figure 12: Rocket manufacturing wrapping the tubes and motor mount.

3.3 National Association of Rocketry (NAR Chapter)

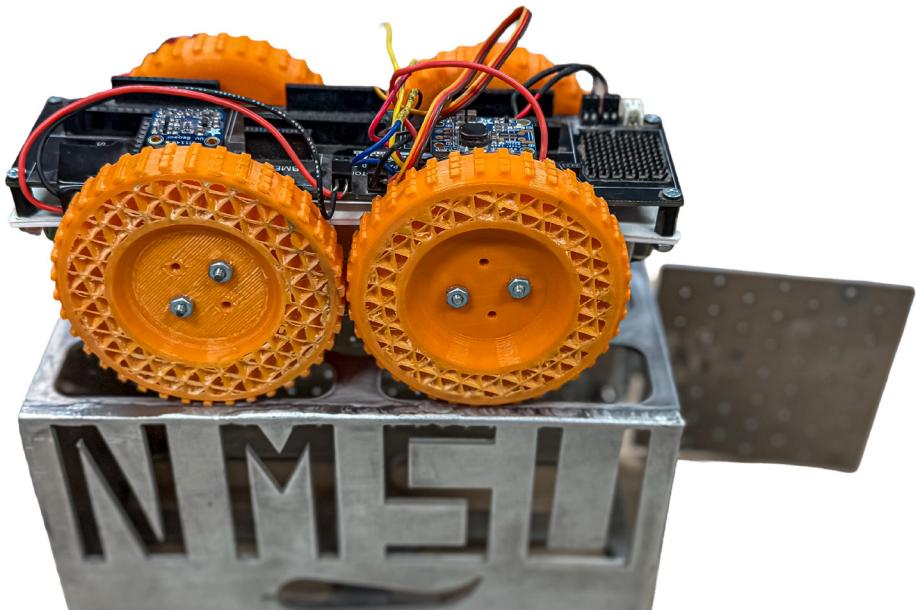


The National Association of Rocketry (NAR) provides rocket enthusiasts across the country with licenses to launch high-powered rockets recreationally. We're excited to share that New Mexico State University's Collegiate Rocketry Team, the Atomic Aggies, is now an officially chartered NAR Section (#982)! Our NAR Subteam Lead and Section President, Joshua Davila, helps Atomic Aggies members earn their NAR certifications — all the way up to Level 3 (L3), the highest level available.

We have several launch sites across southern New Mexico and West Texas, including Alamogordo, NM, Horizon City, TX, and a third private location here in New Mexico.

As part of their certification process, students also learn to use OpenRocket, a professional rocket design and simulation software. With OpenRocket, members can model their rockets, test different motor configurations, predict altitude and flight speed, and estimate how far the rocket will land from the launch site—all before the real flight.

This year, we're aiming for over 30 students to complete their Level 1 and Level 2 certifications, and we're supporting four students on track to achieve Level 3 certification by the end of 2026!



3.4 Payload Team

Deployable Rover Payload (Previous Years competition)

The Atomic Aggies Payload Team is responsible for designing and developing the scientific or engineering experiment carried out aboard the rocket. Their work focuses on creating innovative, mission-specific payloads that collect valuable data or demonstrate new technologies during flight.

This includes mechanical design, sensor integration, data acquisition, and ensuring that all systems operate safely under the extreme acceleration, vibration, thermal conditions of launch, flight, and recovery. The Payload Team collaborates closely with the Avionics and Structures teams to ensure seamless integration and reliable communication between the payload and the rocket's onboard systems. Through rigorous testing, modeling, and analysis, the team turns creative concepts into functional experiments that advance both research goals and the Atomic Aggies' technical capabilities.

The payload design is a lander that has a spectrometer and measures the intensity of different wavelengths of light and compares it to data from different solar panels to find what works best at certain altitudes. The team has also done payloads in the past such as a rover and a glider.

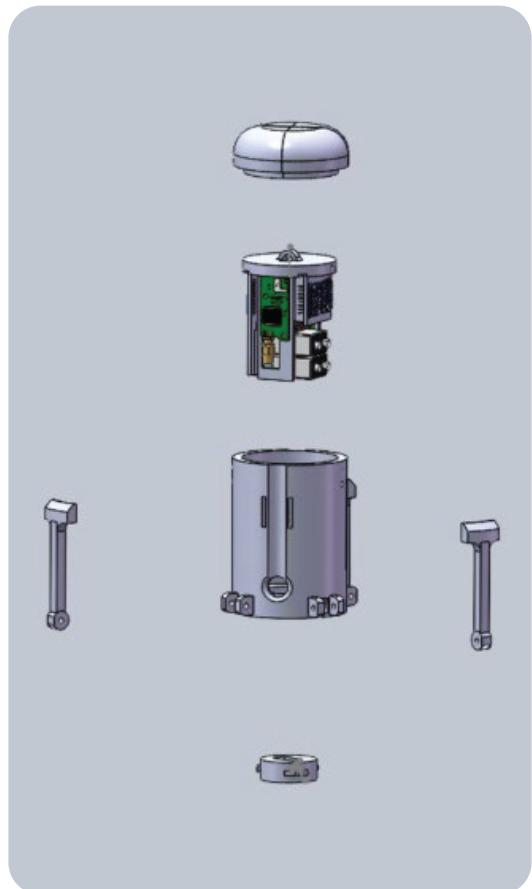


Figure 8:
Payload lander (Current Concept).



3.5 Recovery Team

Stage Separation Test

The Atomic Aggies Recovery Team is responsible for ensuring the safe and reliable return of the rocket and its payload after flight. Their work involves designing, building, and testing parachute systems, separation mechanisms, and deployment of electronics that control the descent and landing sequence.

The team focuses on achieving precise altitude-based deployments, minimizing impact forces, and protecting critical components such as avionics, payloads, and structural assemblies. They also run tracking systems and coordinate recovery operations in the field to locate and retrieve rocket sections after landing. By combining mechanical design, simulation, and real-world testing, the Recovery Team plays a vital role in guaranteeing mission success and preserving valuable flight data for post-launch analysis.

3.6 Safety

The Atomic Aggies integrate safety into every phase of design, build, test, and launch. We follow NAR, ESRA/IREC, NMSU EHS&RM, applicable fire codes, and ATF regulations for energetic materials. Every member has stop-work authority; operations use written SOPs, checklists, and pre-task risk reviews (TRR/FRR). We maintain task-specific training (shop tools, pressure systems, energetics, PPE), stage the right extinguishers and first-aid, and coordinate closely with event RSO/LCO for range procedures and recovery.

Goals & Objectives:

- Zero recordable injuries and 100% compliance with required training and permits.
- JHA/SOP coverage for all non-trivial tasks; checklists used at the bench, pad, and range.
- Report and review incidents/near-misses within 24 hours; implement corrective actions before the next operation.
- Professional range conduct that meets or exceeds RSO/LCO expectations.

3.7 Special Projects

The Special Projects team is the research and development sub team. In previous years, this primarily included the task of developing the Airbrake system used to achieve target apogee. This year, the team's goal has shifted to developing an active control system to maintain a vertical and nominal flight trajectory.

Below is a picture of a simulation on the air brake system that slows the rocket to ensure that the rocket doesn't exceed the desired altitude. The system deploys three plates from the side of the rocket at a specific time. They have also developed a Nacelle that acts as an adaptive control system from the base of the rocket.

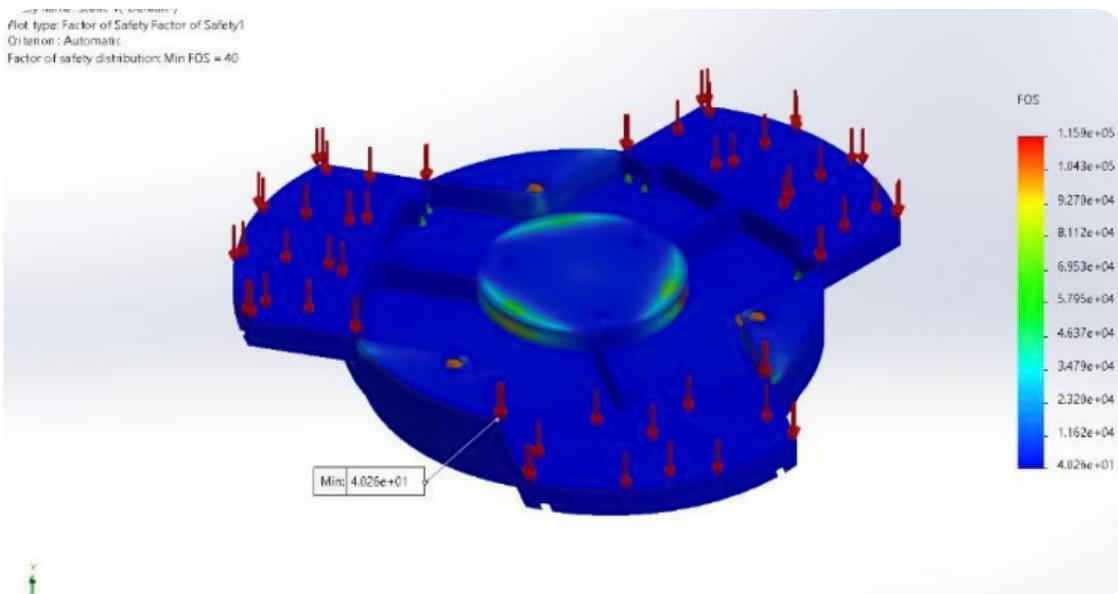


Figure 10: Analysis of the airbrake system shown above & Nacelle design shown below.

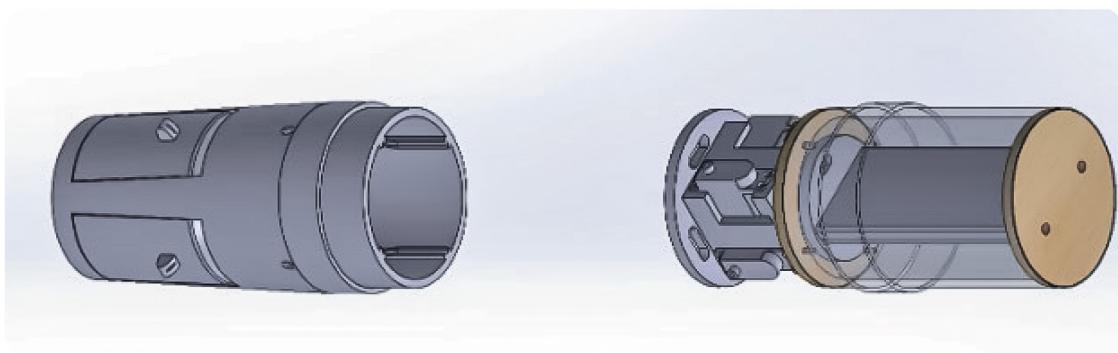


Figure 11. SolidWorks® NACELLE assembly.

4. Additional Focuses

4.1 Outreach & Education

We attend educational events when requested by high school and junior high schools and talk rocketry or help build model rockets. We have also participated in supporting the local best robotics competition.

4.2 Propulsions Development

Atomic Aggies has made several forays into propulsion system development. In the past several propulsions teams have been formed to do research into solid, liquid, and hybrid rocket propulsion systems. While these systems have not made it into a final design, research papers and development demonstrate our continual dedication to the development of in-house rocket engines.

5. Team History and Achievements

Since its founding, the Atomic Aggies have competed in multiple Spaceport America Cups and regional AIAA competitions, winning the Spaceport America chili cup twice and publishing award-winning technical papers.

5.1 Spaceport America Cup Wins:

2022

Chili Cup Winner



2023

Chili Cup Winner



Figure 14. Chile Cup winning years.

5.2 American Institute of Aeronautics and Astronautics (AIAA) Published Papers:

Table 1. Published papers.

Year	Title	AIAA Region IV Team Award
2025	Application of Neuromorphic Attitude Control to High-Powered Rockets (AIAA 2025-97908)	2nd Place
2025	Investigation of Increased Efficiency in Solid Rocket Motors Related to Heat (AIAA 2025-99424)	N/A
2024	Enhancing Altitude Control in Aerospace Systems (AIAA 2024-85956)	3rd Place

Our current flagship project, Crimson Comet 2026, is a two-stage Student Researched and Developed (SRAD) rocket featuring custom avionics, dual telemetry systems, and advanced payload experimentation.

6. The Future – Crimson Comet 2026

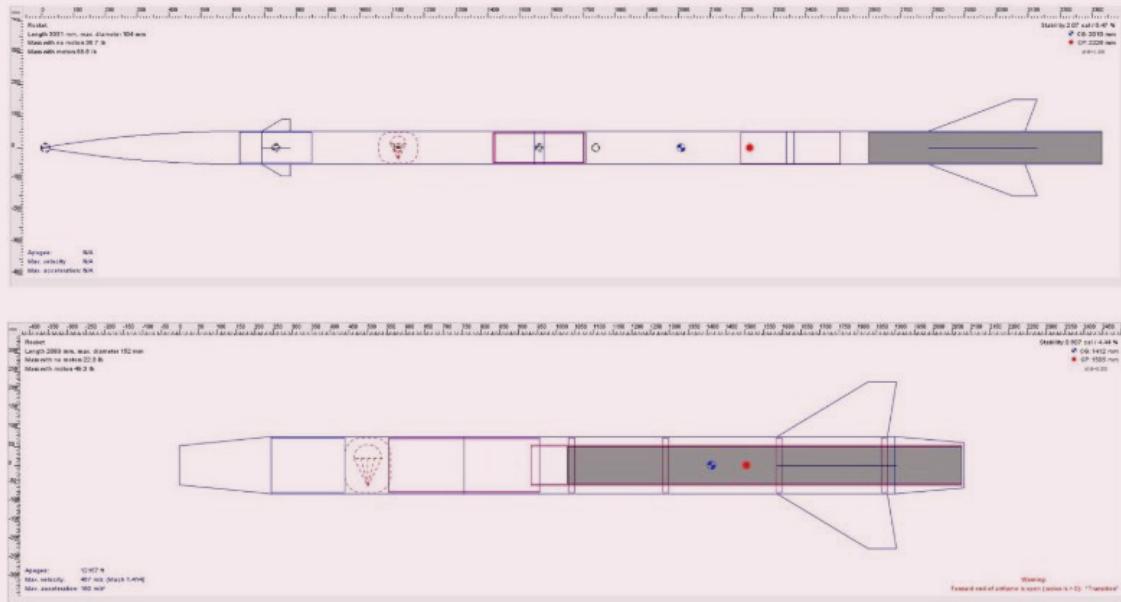
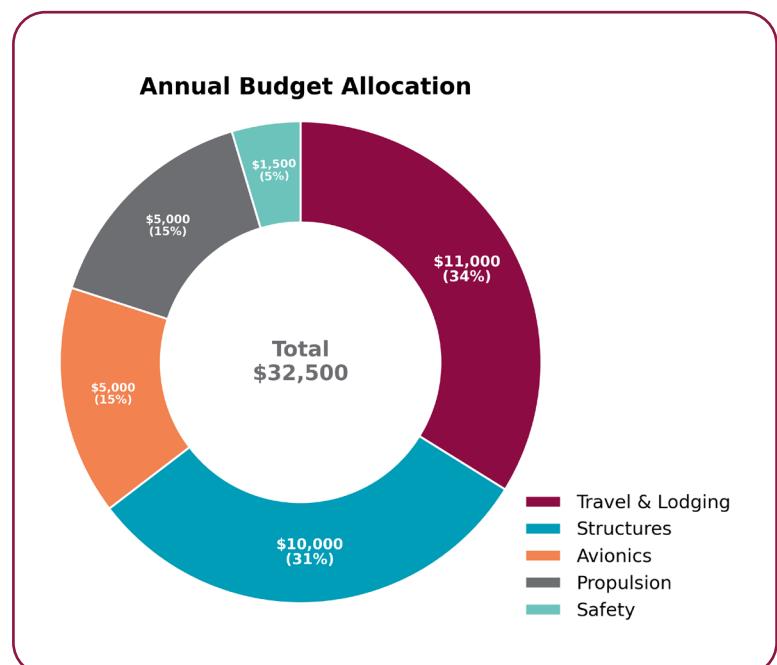


Figure 15. Crimson Comet OpenRocket.

7. Budget Overview

Projected Budget: Avionics \$5,000,
Propulsion \$5,000, Structures \$10,000,
Outreach \$1,000, Travel \$11,000, Safety
\$1,500 – Total \approx \$32,500.



8. Why partner with us

Partnership with Atomic Aggies provides brand visibility through our social media channels, logos on rockets, and more. We offer access to top engineering students through offering custom recruiting events on campus for your organization and access to resumes for the whole team. You will also be contributing to making a lasting impact on STEM education and research in New Mexico.

We offer prebuilt tier package benefits available and offer an a la carte option if you want more flexibility or the option to make a custom contribution with benefits that match your needs.

We appreciate any type of partnership, mentorship, sponsorship, or donation. Also, any material contribution you make will also grant you access to the benefits tier worth the total value of the materials or add to an existing financial contribution.

9. Sponsorship Tiers and Benefits

Table 2. Sponsorship Tiers & Benefits.

Tier →	Spark ≤ \$500	\$500– Booster \$999	Ignition \$1K– \$2.5K	Liftoff \$2.5K– \$5K	MaxQ \$5K– \$10K	Apo- gee \$10K+	Mentor ship Partner	à la carte
Benefit ↓								
Logo on Atomic Aggies Website	✓	✓	✓	✓	✓	✓	✓	Pick and choose what benefits you would like and contact us about what funding you are willing to give.
Logo in Team Workspace		✓	✓	✓	✓	✓	✓	
Logo on Team Apparel		✓	✓	✓	✓	✓	✓	
Logo on Rocket				✓	✓	✓		
Dedicated Social Media Feature	Group Post	✓	✓	✓	✓	✓		

Tier →	Spark ≤ \$500	\$500–Booster \$999	Ignition \$1K–\$2.5K	Liftoff \$2.5K–\$5K	MaxQ \$5K–\$10K	Apogee \$10K+	Mentorship Partner	à la carte
Benefit ↓								
Resume Book Access	✓	✓	✓	✓	✓	✓	✓	
Recruiting Event / Talk Option				✓	✓	✓	✓	
Access to Flight Data Logs					✓	✓	✓	
Signed &/or Flown Artifacts					✓	✓		
Logo Engraved on Flight Hardware						✓		
Invite to test flights				✓	✓	✓	✓	
Invite to Competition Launch (Student VIP Guide) *				✓	✓	✓		

* Sponsor must pay for own lodging, transportation, & food. Once at site will be given a student VIP guide.

** Any material, service, or software donation shall be considered equal to its monetary value



Figure 17. Sponsorship Stickers on Rocket.

Contact Information



Email: atomicaggies@nmsu.edu

Instagram: @atomicaggies

YouTube: youtube.com/@atomicaggies

Website: atomicaggies.nmsu.edu

Donate

Scan QR Code with your
phone or click [Donate Here](#)

