

**Table 1. Top-Level Design Requirements**

Summary of Key Requirements	Source
Rocket shall not fly higher than 5600 feet AGL	USLI
Rocket shall carry scientific payload	USLI
Rocket shall be recoverable and reusable	USLI
Rocket shall land within 2500 ft. of pad	USLI
Cost of flight hardware and payload shall not exceed \$5000	USLI
Students shall do all critical design and fabrication	USLI
Team shall use launch and safety checklists	USLI
Propulsion Requirements	USLI, NAR
<ul style="list-style-type: none"> <li>• Shall use commercially available certified motor</li> <li>• Total cold-gas impulse less than 320 N-s</li> <li>• Cold gas thrust less than 80 s                             <ul style="list-style-type: none"> <li>– NFPA 1122 Code for Model Rocketry</li> <li>– NFPA 1127 Code for High Powered Rocketry</li> </ul> </li> </ul>	NFPA NFPA
The rocket shall get within meters of the one mile target altitude <ul style="list-style-type: none"> <li>• 95% confidence level to resolution of primary sensor</li> <li>• Shall not exceed one mile</li> </ul>	USU
The cold gas CO <sub>2</sub> components shall fit within the rocket case (drag minimization)	USU
The rocket shall launch from a rail with velocity no less than 15 m/s	USU
The structural members shall have a 2.5 factor of safety	USU
Shall gather first time in-flight 2D aerospike surface pressure data	USU