

Project Description

Rocket Design for Exhaust Plume Studies



Figure 1. Harding University University Student Launch Project (USLP) Team.

Ten students and two faculty members at Harding University are participating in the NASA sponsored USLP Program administered by the University Affairs Office of Marshall Space Flight Center. The goal of the USLP Program is to give undergraduate college science, engineering and mathematics students the opportunity to form teams, formulate a project, write a proposal to accomplish the project and then to work together to achieve the goals stated in the proposal, including design, review, experimentation, publicity, fund raising and report writing in much the same way NASA system engineers would do.

The first year goal, given by the NASA sponsors, is to design a rocket that will achieve an altitude of exactly one mile and carry a scientific payload. The collegiate teams are to carry out this mission safely and retrieve the rocket in a condition that it would be ready to flight again without repair. A copy of the Scoring Rubric is attached as Appendix A.

Name	Harding Match
Megan Bush (H01148589)	3800.00
Sarah Christensen (H01150615)	2300.00
Paul R. Elliott (H01150567)	8438.00
Erin Fulks (H01112690)	3500.00
Aaron W. Howell (H01004192)	3200.00
Brett Keller (H00142130)	Governor's Scholar 0.00
Pablo D. Oropin (H01145989)*	Walton Scholar 19372.00
Daniel Sewell (H00138643)	2412.00
Stephen D. Wagner (H00159187)	10200.00
Casey Christensen (H01171854)	0.00
10 Students	\$33850.00

*Pablo Oropin is a foreign national and not counted in the match. He will not receive funds from ASGC. His travel funds will be provided from other non-federal, non-state sources.

Harding USLP Team Budget

Travel to Marshall Space Flight Center for Scheduled Activities 12 – 15, April 2007

Travel Expense (9 Students + 2 Faculty)

Transportation:	Van Rental for 4 Days @ \$72.00/day	288.00
Gasoline:	750 miles roundtrip/15 mpg = 50 gal x \$2.00/ gal	100.00
Hotel:	Bevil Center, University of Alabama Huntsville 3 nights and 6 rooms at \$80.00/ room	1440 .00
Meals:	11 people for 4 days for 2 meals/day 88 meals at \$8.00/meal	704.00
Total Travel Expense		2532.00

Rocket Construction

Competition Rocket Construction	300.00
Payload (Electronics – GPS Unit, Telemetry, Computer Board)	1100.00
Recovery System	300.00
Safety and Licensure	100.00
Outreach	300.00
Total Rocket Expense	2100.00

Total Amount Requested from ASGC **4332.00**

Match from Harding University

14 inch vertical metal cutting band saw	2800.00
Electronics readout for milling machine	1500.00
Scholarship Match	33850.00
Total Harding University Match	38150.00

Justification of the Budget

Funds are requested for purchase of material and electronics for construction of competition rocket. In addition, funds are requested for outreach to purchase an air pump and water bottle rocket launcher for K-12 outreach demonstrations. Finally, funds are requested for all team participants to travel to Marshall Space Flight Center to take part in the competition launch and activities associated with that event.

Pablo Oropin is a Walton Scholar. His travel funds will be provided from sources other than the State of Arkansas or the Federal Government. However, he will participate fully in the design, construction, reporting and launching of the rocket.

A 14 inch vertical metal cutting band saw and digital electronics for the milling machine have been purchased for use in the rocket construction and is offered as a match for the funds. In addition, \$33850.00 in scholarship funds to Harding students as a match for this project.

