

## California Space Grant Consortium Student-Led Hands-On Rocket Projects Request for Proposals

Announcement Released: February 7, 2014  
Proposals Due: March 17, 2014

### **Introduction:**

Funded by NASA, the California Space Grant Consortium has allocated up to \$10,000 to support up to five student teams' participation in national High Power Rocketry (HPR) competitions<sup>1</sup> (\$2,000 per team). The objectives of this funding are to:

- Encourage the formation of student led rocket teams that participate in national rocket competitions and
- Support high-quality hands-on interdisciplinary Science, Technology, Engineering and Math (STEM) team projects.

### **Background:**

Founded in 1989 as part of the National Space Grant College & Fellowship Program, the California Space Grant Consortium (CaSGC) is headquartered at the University of California, San Diego (UC San Diego) with the following Vision and Mission:

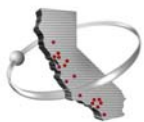
Vision: To inspire and educate the next generation of aerospace scientists, engineers, and managers.

Mission: To serve as a crosscutting and integration agent in California to bring the aerospace-related content, technical expertise, and application environment of NASA's Mission Directorates to the educational community and the general public.

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<sup>1</sup> High Power Rocket competitions include, but are not limited to:

- [First Nations Launch](#) (In Wisconsin: April 3-5, 2014)
- [BotR Battle of the Rockets](#) (In Virginia: April 5, 2014)
- [USLI University Student Launch Initiative](#) (In Utah: May 14-17, 2014)
- [IREC Intercollegiate Rocket Engineering Competition, sponsored by the Experimental Sounding Rocket Association](#) (In Utah: June 26-28, 2014)
- [NARAM56 National Association of Rocketry Annual Meet](#) (In Colorado: July 28-August 1, 2014)
- [ARLISS A Rocket Launch for International Student Satellites](#) (In Nevada: September 8-11, 2014)
- [SEDS 2014 High-Power Rocketry Competition](#) (Local launches through September 2014).



CaSGC research and student-mentor activities are conducted at our 28 affiliate institutions<sup>2</sup> with the following program emphases:

- Aeronautics: Manned and Unmanned Aircraft and Rotorcraft, Rockets, Lighter-Than-Air Vehicles
- Astronautics: Launch Vehicles, Payloads, Planetary Landers, Near-Space Ballooning
- Robotics: Land/Sea/Air
- Green Energy: Wind Turbines, Photovoltaics, Fuel Cells
- Physical Sciences: Environmental Science, Earth System Science, Remote Sensing, Global Climate Change, Space Sciences, Astronomy and Astrophysics
- Outreach: Engagement of STEM Middle-School Teachers, Summer STEM Opportunities for Secondary Students, Community College Engagement

### **Guidelines:**

- Rocket projects must be for a national competition, to be held in 2014.
- Teams must be from an accredited four-year California university (does not have to be an affiliate of the California Space Grant Consortium).
- Team captain and sub-team leaders must be U.S. citizens in accordance with NASA requirements for distribution of student awards.
- Teams may be comprised of either all undergraduate students or a combination of undergraduate and graduate students.
- Project must be supervised by a faculty advisor who is a full-time university employee, will represent the university, and take responsibility for project safety<sup>3</sup>.
- It is highly encouraged for your rocket program to be incorporated into your university's curriculum by adding content to existing courses (capstone design) or by developing new courses.
- Project should include an outreach element where team members present their project to K-12 schools or community colleges to encourage students to study STEM fields. Alternatively, team members may mentor a high school team participating in the Team America Rocketry Challenge (TARC)<sup>4</sup>.
- Project must comply with federal, state, and local laws and regulations, including the National Fire Protection Association (NFPA) 1127 Code for High Power Rocketry<sup>5</sup> and Federal Aviation Administration (FAA) Regulations Part 101.25<sup>6</sup>.
- Final submission of proposal to be made by the team captain and faculty advisor.

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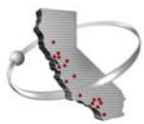
<sup>2</sup> Affiliate listing can be found at [http://casgc.ucsd.edu/?page\\_id=27](http://casgc.ucsd.edu/?page_id=27)

<sup>3</sup> The California Space Grant Consortium will not be held responsible for any damage or injury as a result of project implementation.

<sup>4</sup> <http://www.rocketcontest.org>

<sup>5</sup> <http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=1127>

<sup>6</sup> <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&rgn=div5&view=text&node=14:2.0.1.3.15&idno=14>



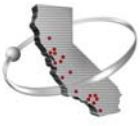
### ***Project Award and Timing:***

- An award of up to \$2,000 will be provided to selected student teams.
- Funding will be provided as scholarships and/or reimbursements for materials/supplies/travel to rocket competition.
- Awards expected to be announced in late March 2014.

### **Proposal Submission:**

#### ***Proposals Must Include the Following Elements:***

- 1) Cover Page: Include proposal title, university name, team name & contact information.
- 2) Proposal Main Body. This must be no more than 11 pages, excluding cover page & budget:
  - a) Project Abstract;
  - b) Names of Faculty Advisor, Mentor, Team Captain, and Team Leaders;
  - c) Faculty Advisor Title, Mailing Address, Email, Phone Number;
  - d) Mentor Title, Mailing Address, Email, Phone Number—mentor must be certified by the National Association of Rocketry (NAR) or Tripoli Rocketry Association (TRA);
  - e) Name of rocket competition this proposal supports; date(s) and location of competition;
  - f) Facility where you will build your rocket (location, equipment available for this project);
  - g) Locations where you will conduct static firings and launches;
  - h) For Team Captain and each of the Team Leaders, need the following information:
    - i) Name, Current Mailing Address, Email, Phone Number, Citizenship, Name of Sub-Team Being Led.
    - ii) University Attending, Major, Year in School (i.e. Junior), any academic honors achieved.
    - iii) Previous Experience with Rockets/Rocket Competitions, if any. [Note: previous experience with rocket competitions is not required.]
    - iv) Unofficial Transcript—this is a part of the proposal but needs to be emailed directly to our office ([tlazzouni@ucsd.edu](mailto:tlazzouni@ucsd.edu)) to ensure privacy for each student on the application. Proposals will not be considered complete until unofficial transcripts for the captain and each of the team leaders have been received. [Transcripts will not be part of the page count.]
  - i) Project Goals and Description, including:
    - i) Goals for what you will accomplish through this rocket project.
    - ii) What motivates you to participate in a rocket competition?
    - iii) Team leadership, including structure and plans for quality control and safety.
    - iv) Timeline
    - v) Specifications for the rocket to be developed:
      - (1) Motor type and size;
      - (2) General vehicle dimensions;



- (3) General information about your recovery system;
  - (4) Type of Science or Engineering payload to be carried with hypothesis and/or stated goal for payload; and
  - (5) Whether you will include an on-board camera.
- j) Safety:
- i) Name of safety officer
  - ii) Steps you have or will take to ensure project is conducted safely in light of:
    - (1) National Fire Protection Association (NFPA) 1127: Code for High Power Rocketry<sup>5</sup>
    - (2) FAA Regulations Part 101.25<sup>6</sup>
    - (3) National Association of Rocketry (NAR) High Power Rocket Safety Code<sup>7</sup> and
    - (4) Tripoli Rocketry Association (TRA) Safe Launch Practices<sup>8</sup>
- k) Outreach Plan: Description of plans to conduct outreach to students in K-12 or community colleges to encourage them, by your example, in choosing STEM careers. Please include plans for obtaining feedback as well as a means for effective dissemination of project results (web, social media, and conference presentations, for example). Mentoring a high school team in TARC<sup>4</sup> will also count as outreach.
- l) Signed Letter of Commitment from Faculty Advisor on university letterhead stating that s/he will oversee the project development and that s/he or the university will take responsibility for the safety of the project. The California Space Grant Consortium will not be held responsible in any way. This letter should also include an endorsement of the team's ability to conduct a professional, high-quality rocket project.
- m) Paragraph detailing the long range plans for the rocket club including university commitment to encourage the club to pursue future competitions.
- 3) Budget Narrative and Details:
- a) Students receiving Space Grant funds must be U.S. citizens.
  - b) Provide estimated expenses (in table form) as well as an explanation of expenses.
  - c) List of other funding sources, including university, government, and industry sponsors.

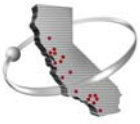
***Proposals Will Be Evaluated on the Following Criteria:***

- Clarity of Project Goals & Description
- Safety
- Interdisciplinary Teaming
- Academic Achievements of Team Leaders
- Outreach Plan

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<sup>7</sup> <http://www.nar.org/NARhpssc.html>

<sup>8</sup> <http://www.tripoli.org/LinkClick.aspx?fileticket=RhLaGq2C%2bHY%3d&tabid=326>



***Additional Notes:***

- Proposers selected for funding agree to:
  - Complete our online awardee form and respond in a timely manner to California Space Grant Consortium requests for information.
  - Display the California Space Grant Consortium emblem on the rocket.
  - Submit a final report after the rocket competition as well as a few photos taken of the team working on the project and at the competition.
  - Sign a media waiver form so that photos may be submitted to the NASA Space Grant website.
  - Conduct outreach to students in K-12 or community colleges to share the excitement of this project.
- Questions about this solicitation may be directed to:  
Tehseen Usman Lazzouni, [tlazzouni@ucsd.edu](mailto:tlazzouni@ucsd.edu), 858-534-2472

***Please Submit Proposals via Email to:***

John Kosmatka  
Director – CaSGC  
[jkosmatka@ucsd.edu](mailto:jkosmatka@ucsd.edu)

Tehseen Usman Lazzouni  
Assistant Director – CaSGC  
[tlazzouni@ucsd.edu](mailto:tlazzouni@ucsd.edu)