



COLLEGIATE ROCKET LAUNCH (CRL)

Informational Telecon: October 8, 2020 @ 6:00 pm
Notice of Intent to Compete Due: October 26, 2020
Selection Announcement: October 30, 2020
Kick-off Meeting Online: November 5, 2020 @ 6:00 pm
Safety Review Meeting at EAA Museum: March 27, 2021
Oral Presentation at Carthage College: April 23, 2021 @ 6:00 pm
Launch Competition – “USB Umbilical Data Challenge” at Richard Bong Recreational Park:
April 24, 2021

A calendar of events fully detailing program due dates is included in the competition handbook.

Awards*: Mission Grand Champion - \$3000**; 2nd Place - \$2000; 3rd Place - \$1000

Team Funding*: up to \$775 rocket supplies and equipment, flight competition motor and flight data recorder

Travel Funding*: based upon round trip travel to and from competition (*see chart below*)

** Subject to availability of funds.*

***Awarded to highest scoring team that successfully completes the mission and all aspects of the competition.*

Purpose: The Wisconsin Space Grant Consortium’s (WSGC) Collegiate Rocket Competition is intended to supply teams of affiliated university students with the opportunity to demonstrate engineering and design skills through direct application. It allows the teams to conceive, design, fabricate and compete with high powered rockets. The restrictions on rocket motors and dimensions are limited so that knowledge, creativity and imagination of the students are challenged. The end result is a great aerospace experience for students that would not otherwise be available in the region.

It is the purpose of this Announcement of Opportunity to support the innovative, visionary projects that are student-led and designed to fully realize WSGC’s goal of assisting in training the next generation of aerospace professionals.

About the Program: The Wisconsin Space Grant Consortium (WSGC) announces the Annual Collegiate Rocket Launch Design Competition. This competition is an opportunity for students to design and construct rockets to be launched at a competition in the spring from Richard Bong State Recreational Area, Kansasville, WI.

Wisconsin Space Grant Consortium (WSGC) will sponsor up to twelve (12) teams - one team per academic institution. To qualify for the competition, interested teams of 4-6 students will be required to submit a Notice of

Intent to Compete by a faculty member, in which the team lead and team members are listed. Teams are allowed to seek advice from Industry, Tripoli, NAR, and others. Teams do not need to have prior rocket experience.

Note: Teams selected to participate in the Collegiate Rocket Launch Competition may only receive funding for one WSGC sponsored rocket competition. Individuals selected to compete in the Collegiate Competition cannot compete on a Midwest High-Power Rocket Launch team but are encouraged to shadow a Midwest High-Power Rocket Launch team. Only six (6) students can register per collegiate team on the WSGC registration site.

Competition Engineering Parameters:

Student teams will be required to design, construct and fly a high-power, one-stage rocket that, following apogee, will be recovered safely and in flyable condition, predict the rocket’s flight performance, collect down-looking on-board video and include an avionic system that will monitor internal systems throughout the flight. The avionic system must be controllable while on the launch pad via a wired-remote with magnetic breakaway connector. Additional rocket parameters include the use of a motor selected from a list of acceptable motors and dual-deploy, electronic recovery with motor-charge backup. The rocket is required to use electronic deployment of the recovery parachute and must include motor deployment as a backup. A downed rocket location aid must be included. All structural components and materials for the rocket must be obtained from reputable high-powered rocketry vendors or an engineering analysis demonstrating their suitability must be included with the design. The winner of the flight portion of the competition will be the team whose rocket completes a safe, successful flight with the apogee closest to their predicted apogee.

The competition will include a series of written reports about the design, analysis, simulation, build, and test flight results of the rocket, an oral presentation, plus assessment of competition flight data results. Teams are required to submit simulations in RockSim. A panel of professionals will score these from both academia and industry. Scoring of the pre-competition reports and the post-flight report will focus on the system design and its performance. More details about the competition motor, reports, deadlines, etc. are available in the competition handbook.

Equipment/Reimbursable funds provided by WSGC:

<p>Required Competition Rocket Motor</p>	<p>Aerotech Consumer Aerospace: All 38mm I435T, I366R, I284W, J350W, J500G, I600R</p> <p>Thrust curve data can be found at: http://www.thrustcurve.org/searchpage.jsp</p>
<p>Competition Flight Data Recorder</p>	<p>Jolly Logic AltimeterTwo</p> <p>AltimeterTwo User Guide https://jollylogic.com/public/JollyLogicAltimeterTwo-Gen2-V4web.pdf</p> <p>1.90" x 0.7" x 0.57", ~ 0.35 oz. Powered by a built in, rechargeable battery. This recorder is separate from the team’s electronic deployment system and will be inserted the day of launch to record acceleration and altitude.</p>
<p>Rocket Supplies and Equipment</p>	<p>Reimbursed up to \$775. Submit a Team Project Expense Form accompanied with original receipts to: Connie Engberg</p>

	<p>cengberg@carthage.edu 262.551.2966</p> <p>NOTE: Final reimbursement deadline is May 10, 2021. WSGC Team Expense Reimbursement Instructions</p>
Travel Award	<p>Teams are eligible for lodging reimbursements based upon one-way mileage from Richard Bong Recreational Area to the team's college/university. Travel budgets must be included with the preliminary budget submission.</p> <p><50 miles = no lodging >50 miles<100miles = 1 night hotel (maximum 2 rooms) >100 miles = 2 night hotel (maximum 2 rooms)</p> <p>*NOTE: Only one travel reimbursement per team for competition weekend</p> <p>The reimbursable mileage rate is \$.575/mile. 4 member teams are eligible for up to 2 competition mileage reimbursements. 5-6 member teams are eligible for up to 3 competition mileage reimbursements. All teams are eligible for one EAA Safety Meeting mileage reimbursement.</p> <p>All travel reimbursement requests must be signed and submitted by the Faculty Advisor.</p>

To Register and Apply: The faculty advisor must first register with WSGC before students/team members register. One exception to the order of registration exists. If the student team lead has never registered with WSGC, he/she must register before the advisor begins the Notice of Intent (NOI).

A faculty advisor must complete the following steps:

- **REGISTER** as faculty on the WSGC website (<https://spacegrant.carthage.edu/about/login/>). Applicants will be prompted to update personal information annually.
- Complete and submit the "Rocket Launch Team (Create NOI)" Grant **APPLICATION** form (<https://spacegrant.carthage.edu/forms/account/login/?next=/forms/application/first-nations-rocket-competition/>).
- The following information/documents will be submitted during this step:
 - Other WSGC funding received
 - Team Name
 - Co-Advisor (if applicable)
 - Student Team Lead
 - Grants Officer (if applicable)
 - Industry, Tripoli, National Rocketry Association Mentor Name and Email
 - Competition (Collegiate)
 - Team Members List

Once the faculty advisor completes the Notice of Intent (NOI), identifies the team name, lists the co-advisor (if applicable), team lead and student participants, and chooses which competition the team will compete in, each team member (including a co-advisor) will need to:

- **REGISTER** as an undergraduate student on the WSGC website (<https://spacegrant.carthage.edu/about/login/>). Applicants will be prompted to update personal information annually (if previously registered).
- **Sign in**, complete and submit the Collegiate Rocket Competition **APPLICATION** form (<https://wsgc.carthage.edu/apps/application/collegiate-rocket-competition/>).

- Upload current resume to applicant profile (optional). Applicants must check box in order to allow WSGC to share the applicant resume with Wisconsin Aerospace Industry partners for co-op, internship, and employment opportunities.
- Submit the following information/documents during this step.
 - Other WSGC funding received
 - Team Name submitted by the Faculty Advisor
 - Resume (optional – Applicants must check box in order to allow WSGC to share the applicant resume with Wisconsin Aerospace Industry partners for co-op, internship, and employment opportunities.)
 - Prior Rocket Experience
 - Media Release
 - Individual W9

Application Requirements: Team/Individual applicants who meet the following requirements can apply for this grant by registering and applying online at spacegrant.carthage.edu/about/login:

- be US citizens
- attend any WSGC [Academic Affiliate Institution](#) full-time
- have a committed faculty mentor
- have a committed Industry, Tripoli, and/or National Association of Rocketry mentor
- be comprised of 4-6 team members
- select a team leader

Individuals/teams may:

- compete without experience (*Teams will be given the basic training and information required*)
Groups of students wishing to be paired up with like-minded students at other affiliate institutions should contact the WSGC Institutional Representative for their campus. Members of groups underrepresented in aerospace disciplines are particularly encouraged to participate.
- seek membership and Level I, II, and/or III through Tripoli and/or the National Association of Rocketry

*Individual students cannot participate in more than four WI Collegiate Rocket Competitions.

[See a list of current and past award recipients](#)

Award Acceptance Components: As part of the award acceptance, 1st-3rd place awardees will be asked to attend and present at the Annual Wisconsin Space Conference as outlined in the award agreement and all participants will submit the following documents on the WSGC application website under Program Applications/Your Applications:

All Advisors/Participants

- Award Agreement Letter
- Media Release Form
- One-Paragraph Biography
- Professional Photo

All Team Members

- Attend the Online Kick-off Meeting
- Attend the Online Design Review Meetings
- Attend the Safety Review Meeting @ [EAA](#)
- Oral Design Presentation

- Launch Competition
- [Submit Student Stories](#)

Winning Teams

- [Present project at the 31st Annual Wisconsin Space Conference](#)
- [Submit a proceedings paper for the 30th Annual Wisconsin Space Conference online journal](#)
- [Individual W9](#)

Team Lead

- Preliminary Design Review Report
- [RockSim model file of Preliminary Design](#)
- Preliminary Budget
- Demo Flight
- Critical Design Review Report
- Final Team Roster
- Flight Readiness Review Report
- Education Outreach Form
- Post Flight Performance Report
- 2-3 Project Photos Featuring Team Members

If you have question about the Student Satellite Initiatives Program, please contact:

Dr. William Farrow

Wisconsin Space Grant Consortium
Associate Director for Student Satellite Initiatives
Milwaukee School of Engineering
Phone: (414) 277-2241
E-mail: farroww@msoc.edu

Wisconsin Space Grant Consortium

Carthage College
2001 Alford Park Drive, Kenosha WI 53140
Phone: 262-551-6054
E-mail: spacegrant@carthage.edu

This funding opportunity is made available for the pursuit of space-related research and/or activities through the National Space Grant College and Fellowship Program: NASA Educational Cooperative Agreement #80NSSC20M0123. Catalog of Federal Domestic Assistance (CFDA) number for this award is 43.008.

All awards are fully competitive awards of opportunity in which applications are reviewed by the WSGC Technical Advisory Panel and other experts as needed. Awards are made by the Assistant Director based on recommendations from the Associate Director.

Please follow us on     for program updates

