

The American Institute of Aeronautics and Astronautics at UCLA

2020-2021 Sponsorship Proposal





aiaa.seas.ucla.edu

aiaaucla@gmail.com

Letter From Our President

Dear Prospective Sponsor,

The American Institute of Aeronautics and Astronautics Student Branch at the University of California, Los Angeles (AIAA at UCLA) is a professional organization that connects students, industry representatives, and academics dedicated to the advancement of aeronautics and astronautics. AIAA at UCLA focuses on enhancing our members' college education by providing students with knowledge and activities not incorporated into the curriculum. With career development, mentorship, and hands-on technical projects, our members are better prepared for their future in aerospace after UCLA.

During the school year, our chapter hosts and organizes events that facilitate networking and improve professional development skills of our members. By collaborating with different companies, facility tours and info-sessions are made possible to increase industry exposure for our members. The annual Mechanical and Aerospace Engineering Career Fair at UCLA is co-hosted by AIAA at UCLA, providing students the opportunity to speak with industry representatives and even securing an internship or job.

Furthermore, AIAA at UCLA is an umbrella organization for three student projects: Design Build Fly at UCLA (DBF), Rocket Project at UCLA (URP), and Unmanned Aerial Systems at UCLA (UAS). The majority of our membership actively participates in at least one of these projects, allowing them to develop their technical abilities and apply concepts taught in the classroom to real engineering problems. With experience in working with an engineering team, our members develop their problem solving, leadership, and teamwork skills.

AIAA at UCLA serves almost every technical major on campus, including aerospace, mechanical, electrical, chemical, and computer engineering, physics and astrophysics in both undergraduate and graduate programs. We also encourage non-technical majors with a passion for aerospace to join.

By contributing to the AIAA chapter at UCLA, your company helps young engineers and even others interested in aerospace acquire vast technical skills, teamwork and leadership traits, and a true enthusiasm for their work. Our students are grateful for the opportunities afforded to them by your sponsorship and enrichment of their college education.





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As an entirely student-run organization and the largest aerospace society on campus, we ask for you to join us in our endeavours to sustain and advance aerospace in our community.

Thank you for your time and consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read "Oliver Lam".

Oliver Lam
President, AIAA at UCLA



Project Overviews

As a sponsor, you will be able to play a critical role in supporting hands on engineering projects that allow students to develop technical skills as well as soft skills as they work towards a common goal on a team. Students can apply theoretical knowledge from courses in a hand-on environment to prepare them for internships and working in industry.



Design Build Fly

Overview

Design Build Fly (DBF) at UCLA, an engineering club dedicated to researching, designing, manufacturing, and flying model airplanes, is composed of a team of hardworking, dedicated students. Each year, club members bring together their collective knowledge and abilities to construct a plane designed to fit specifications outlined by the American Institute of Aeronautics and Astronautics (AIAA) for the Design Build Fly competition, which takes place each spring. For the 2019-2020 Competition, the plane had to carry model passengers as well as be able to deploy, tow and release a banner in flight. The COVID-19 pandemic prevented the team from participating in this year's competition, but based on design report scores, the team tied for 11th, improving upon the 20th place finish the previous year.



AIAA DBF Competition 2019 - Tucson, Arizona

Current and Future Development

This summer, and into the remote-instruction based fall quarter, DBF plans to direct its efforts towards research and development, looking into more complicated and refined design and manufacturing processes. Fall will bring with it the recruitment process for new members, as well as remote meetings and training in CAD and FEA software. A project to document all processes currently employed by the club is also currently underway, with the writing of a lab manual.

To give new members the full experience of designing a plane, the aerodynamics and electronics & propulsions leads for DBF are putting together a mock competition for this summer and fall, choosing their own specifications. They plan to walk the members of their subteams through the data-processing experience. Since the usual design process is generally quite rushed and takes place at the very beginning of the year, it is difficult for new members to really take part; this mock competition will give these members a chance to gain experience and thus be invaluable during the process in future years.



Prototype Fly Day



Prototype 1: Spruce Bruce

In the coming year, DBF is planning on the revival of the AIAA Design Build Fly competition, and intends to coordinate the design process remotely for the specifications released this fall. Should this competition fail to occur, DBF plans to participate in various research and report based competitions held across the country, as well as engaging in further development and construction of the members of the Spruce family, the plane designed for the 2020 competition. And finally,

DBF hopes to pursue constructing planes with entirely new design elements, including biplanes, swept wings, and dual-propellers.

Budget

The proposed 2020-2021 budget is estimated based on the assumption that the 2020-2021 AIAA DBF competition will be held. In the event that the competition is cancelled again, research paper based competitions and other competitions such as the SAE Aero Design competition will become the focus to allow the club to continue to develop.

Design Build Fly Proposed 2020-2021 Budget	
Laboratory	\$300.00
Manufacturing	\$1,000.00
Propulsion / Pilot	\$1,000.00
Team Budget	\$500.00
Transportation	\$500.00
Competition & Events	\$4,500.00
Projected Operating Costs	\$7,800.00

Rocket Project

Overview

Rocket Project at UCLA is a student engineering team that teaches rocket engineering through hands-on exposure to the complete design-build-test cycle of engineering, giving students an opportunity to apply classroom subjects to a project with real-world challenges and thrilling results.

Recently, collegiate rocket engineering has grown rapidly nationwide, with competitions like the Spaceport America Cup drawing over 100 teams. Rocket Project at UCLA stays at the forefront of collegiate rocket engineering with our member education, community outreach, hybrid project, and liquid project.

Over the last 3 years, we have grown our club from a couple dozen students building a single hybrid rocket to an organization serving over 100 students with multiple projects. We have greatly increased our commitment to member education and safety as well as community outreach. In the same timeframe, our liquid propulsion effort was conceived and has gone on to launch 3 liquid bi-propellant rockets, with a 4th launch planned for Fall 2020. This makes us 1 of only 7 schools in the United States to launch this type of rocket.



Prometheus Launch



Prometheus Team

Throughout our endeavors, we strive to promote inclusivity and diversity by structuring internal educational pathways to make even the most complex problems approachable and by carrying out external outreach programs dedicated to inspiring the next generation of rocket engineers from all walks of life.



RISE Program



Outreach Event

Current and Future Developments

Rocket Project plans to educate and train over 50 new members through our education program, RISE.

Project Ares plans to launch its 4th liquid bi-propellant rocket, Endurance, in Fall 2020 to a target altitude of 45,000 feet. Ares will also perform multiple hot fire tests of its engine and launch another rocket in Spring 2021 after iterating on the design of Endurance.



Ares Team



Ares Test Fire

Project Prometheus plans to perform multiple hot fire tests of its hybrid rocket motor and launch multiple test rockets. Beyond that, the project will launch a competition rocket to 10,000 feet at the Spaceport America Cup in Spring 2021.

The Research and Development team plans to launch a staged rocket and a rocket with active controls.

The outreach team plans to create an online video curriculum to send to local elementary schools, with resources on rocketry, engineering, and science.

Budget

The proposed 2020-2021 budget is estimated based on the assumption that projects will be able to continue as the situation surrounding the COVID-19 pandemic improves.

Rocket Project Proposed 2020-2021 Budget	
Ares	\$12,500.00
Prometheus	\$6,000.00
Outreach	\$1,000.00
R&D	\$2,000.00
RISE	\$1,000.00
Projected Operating Costs	\$22,500.00

Unmanned Aerial Systems

Overview

UAS at UCLA is a team of approximately 40 undergraduate students from various engineering disciplines such as Mechanical, Aerospace, Electrical, and Computer Science working together to develop autonomous aerial technology.

The team's goal is to undertake 2-year project cycles with new designs to provide members with experience designing and developing different types of autonomous vehicles.

In 2019-2020, the team worked together to design and fabricate an autonomous fixed-wing vehicle to compete in the annual AUVSI SUAS competition held at Webster Field in Maryland. The competition, held in June each year, tests teams abilities to perform in a mock search and rescue mission. The entire system, including the structures, hardware, and software was developed by UCLA students. This year would have been the club's fourth time competing in the competition but first time entering with a completely original fixed-wing design.

Unfortunately, the 2020 AUVSI SUAS competition was cancelled. To adapt, UAS@UCLA worked on two proposals, one for the First Responders Endurance UAS challenge, and another for a NASA research grant. Both proposals focused on advancing multi-rotor drone endurance for real world applications.



Spinny - 30 lb Quadcopter

Current and Future Developments

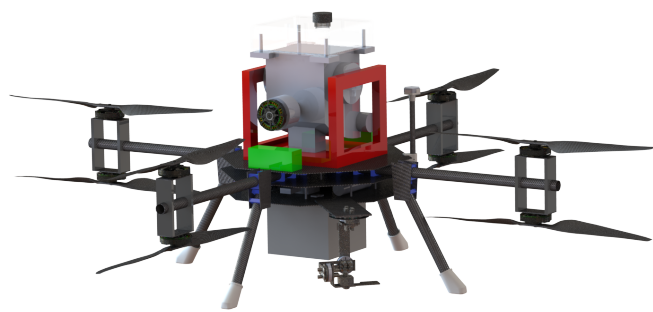
UAS at UCLA is currently working on two projects concurrently: a NASA Undergraduate Student Research Challenge (USRC) proposal and a competition entry for the First Responder UAS Endurance Challenge. UAS' proposal for USRC, an innovative system that coordinates a network of small drones to lift heavy objects, has been accepted and given grants by NASA. The team is excited about this new opportunity and is working hard to develop, design, and build this system. UAS is also diligently working and advancing through the First Responder Challenge—this competition challenges teams to design a drone to carry a ten-pound payload for as long as possible. The team has scored in the top twenty of the first stage of the challenge and is working hard to score additional positive results as the competition continues through this year.

In addition to these two projects, UAS is overhauling the club's member introductory experience, UASpire. Even with the interruption to normal club and school activities due to the COVID-19 pandemic, the club is confident that the new UASpire program will better inspire new members to explore the world of drones and prepare students for developing aerial systems in a cohesive team.

The team is committed to working on these three projects over the next year. However, UAS is always prepared to undertake new opportunities that expand the scope and intricacy of the club. The club remains open to competing in its traditional competition, the AUVSI SUAS competition, but, as with all projects this year, this will depend on how the COVID-19 pandemic plays out this year.



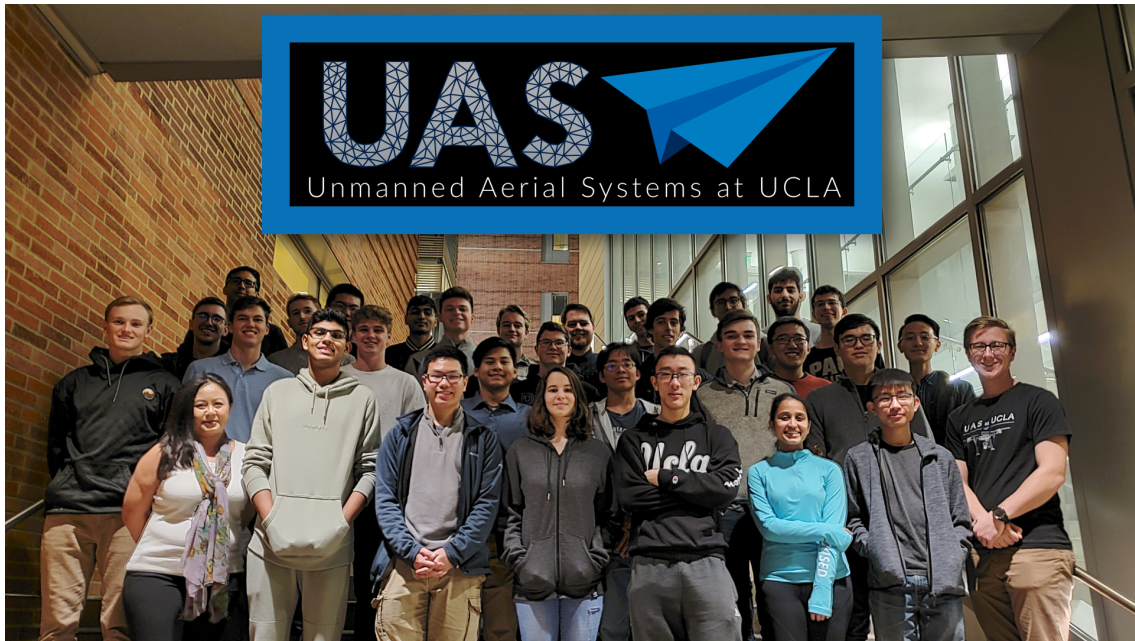
2019-2020 Competition Plane



Coaxial Hybrid Quadcopter

Budget

Unmanned Aerial Systems Proposed 2020-2021 Budget	
First Responder's Challenge	\$12,000.00
NASA USRC AVIATA	\$7,000.00
UASPIRE	\$2,500.00
AVUSI SUAS	\$5,000.00
Projected Operating Costs	\$26,500.00



UAS 2019-2020 Team

AIAA Professional Development

Throughout the year, AIAA at UCLA hosts events to help promote professional development for students. A major event that AIAA hosts in conjunction with several other engineering organizations on campus is the MAE x MRS Career Fair. Other events held by AIAA include info-sessions with interested companies, resume and interviewing workshops, as well as free professional photo shoots. In response to the current situation with the COVID-19 pandemic, AIAA will transition to online events in order to protect students while still providing opportunities for professional growth and development.



Operating Budget

AIAA at UCLA plans to continue to host professional development events as well as host an online career fair to prioritize safety. Following all government and university guidelines, returning to work on the projects will look different and will require increased safety precautions.

AIAA General Fund Proposed 2020-2021 Budget	
Professional Development	\$500.00
Project Support	\$4,500.00
AIAA Branding	\$500.00
Lab Maintenance	\$1,500.00
PPE	\$200.00
Online Career Fair Software	\$1,000.00
Projected Operating Costs	\$8,200.00

Total AIAA 2020-2021 Operating Cost	
AIAA at UCLA General Fund	\$8,200.00
Design Build Fly (DBF)	\$7,500.00
Rocket Project at UCLA (RP)	\$22,500.00
Unmanned Aerial Systems (UAS)	\$26,500.00
Projected Operating Costs	\$64,700.00

Sponsorship Details

	Gold (\$2000+)	Silver (\$0-\$2000)
Company Logo	<ul style="list-style-type: none"> - All Presentation Slides and Design Review Slide Presentations - AIAA at UCLA website and project websites - Competition Rockets, Planes and Drones - Sponsorship Proposal - Project T-Shirts 	<ul style="list-style-type: none"> - All Presentation Slides and Design Review Slide Presentations - AIAA at UCLA website and project websites - Competition Rockets, Planes and Drones - Sponsorship Proposal
Perks	<ul style="list-style-type: none"> - Meet & Greet/Lab Tours with Projects - Quarterly Update Newsletter - Free Company Information Session Hosted by AIAA at UCLA - Resume Book 	<ul style="list-style-type: none"> - Meet & Greet/Lab Tours with Projects - Quarterly Update Newsletter



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Thank you to our current sponsors!



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AIAA at UCLA Sponsorship Form

Company Name: _____

Address: _____

Email: _____

Phone Number: _____

Yes! We would like the _____ package by generously donating \$ _____ to be distributed as follows: (Please check the box and indicate the amount next to the respective projects.)

AIAA at UCLA General Fund _____ Design Build Fly _____

Rocket Project at UCLA _____ Unmanned Aerial Systems _____

Yes! We would like to donate the following products/supplies with a value of \$ _____. Supplies/Products: _____

Thank you for supporting AIAA at UCLA!

Please email this completed form to Nathan Landay of the UCLA Engineering Office of External Affairs: nlanday@support.ucla.edu and Oliver Lam, AIAA at UCLA President: aiaaucla@gmail.com.





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Contact Us Today!

For more information about AIAA at UCLA, Design Build Fly, Rocket Project, Unmanned Aerial Systems, or planning a lab tour, please contact:

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