

SOAR Awards Application: Science Olympiad Outreach at UGA

In recent years, there has been a push towards STEM education from a young age. Many UGA students may remember doing science experiments in elementary school or lab-based science courses in high school. Students who are especially interested in STEM may be familiar with Science Olympiad. Science Olympiad is a national organization designed to promote STEM education to K-12 students through competition. Each year, students compete in 23 events, ranging from anatomy to bridge building to forensics. Science Olympiad has grown nationally to impact thousands of students, and Georgia is home to one of the largest state Science Olympiad organizations in the country.

Organizational History and Service Platform

Science Olympiad Outreach at UGA was founded by former Science Olympiad competitors in Fall 2014 to help promote STEM education by supporting the National Science Olympiad organization. Through outreach events in the local community, encouraging local schools to form Science Olympiad teams, and hosting tournaments for teams to compete in, Science Olympiad Outreach at UGA aims to touch as many students as possible and encourage participation in STEM.

Our service focus is on STEM education. Through outreach events in our community, we are able to expand STEM education beyond the university campus to local, Athens-Clarke elementary and middle schools. Additionally, we partner with after-school programs (including Thomas-Lay), local libraries, and local homeless shelters to lead fun science activities to spark an interest and curiosity for science at a young age.

In addition to outreach programs, each year, we host two tournaments at the high school division: an invitational tournament in the fall and a regional tournament in the spring. An invitational tournament is fun, practice tournament designed to help teams prepare for the upcoming competition season. Georgia is one of the few states that hosts invitational tournaments, so even teams from neighboring states travel to Athens to take advantage of the tournament.

Science Olympiad Tournaments

We hosted our first invitational tournament on January 31, 2015, catering to thirty high school teams around Athens and metro-Atlanta. Since our first tournament, we have expanded to hosting two tournaments a year. Given the success of our program, we were recruited by state and national directors to host a regional tournament in Spring 2016 hosting twelve teams. Growing significantly to the present, our invitational tournament is now the second largest invitational in the state, with over 45 teams, and our regional tournament is the largest regional in the state, with over 35 teams. For the past three years, we have been rated the top invitational and regional tournament in the state. This is especially impressive, considering we are the only tournament in the country run exclusively by students.

Each tournament, we recruit 60-80 volunteers from club members to students across campus. Volunteers are promised service hours, home-cooked food, and the opportunity to work with younger students and run a successful tournament. Even with a small number of volunteers, each tournament, with up to 45 teams, we are able to host an incredible and efficient tournament attended by over 450 students and 50-100 coaches and parents. Next year, we will be expanding our Fall invitational tournament to 60 teams, making us one of the largest in the country.

Most likely, in future years, the Georgia state tournament will be hosted at UGA by our organization, rather than Emory, due to our measurable and relative success and size. We are in the running to host the National tournament, an honor given to very few schools that can bolster the entire school's national ranking, attracting top students from across the country. If selected to host, our tournament will work closely with UGA administration and faculty to advance UGA's interests while simultaneously providing the best experience for competitors.

Community Impact and Personal Growth

By hosting Science Olympiad tournaments, we are promoting STEM education by allowing students to learn in a fun and supportive environment. The competitors are encouraged to learn about a wide array of STEM fields, whether it is astronomy, forensics, or engineering. Those students then find their passions in STEM to pursue in higher education. Meanwhile, our volunteers are giving back to the community and encouraging these students to succeed. Both sides of the table benefit from our work.

Since beginning our organization, several new teams in Athens-Clarke and surrounding communities have started Science Olympiad teams. Before our efforts, schools had to travel to metro-Atlanta or coastal Georgia to compete in Science Olympiad, so we have had a measurable impact on the state of Science Olympiad in Georgia.

The only student-run Science Olympiad tournament host in Georgia, we work to engage students, professors, and alumni in our efforts to spread the love for science. Through our outreach efforts, our members are able to serve as mentors within the community. Volunteers enrich their personal lives by building connections with younger, impressionable students and potentially opening their eyes to careers they have never explored before. We have learned that college students can have a huge impact when they choose to become involved with the environment around them. Our organization has improved for the better once we understood how giving back positively impacts younger people and the community. Hopefully our members will continue to give back in other ways and grow personally.

Additional Outreach Efforts

Despite several efforts over the years, until this past semester, we did not have many outreach programs. Our main events were the high school tournaments that we hosted each semester. Although the tournaments were very successful, our organization realized that our program could offer more in terms of serving the community. We soon decided to start organizing and planning community outreach programs and events.

Over the past few years, our organization has continued to expand and develop our tournaments through streamlining our exam writing process, website development, and heavy volunteer recruiting. However, within the past year, our program has made exceptional improvements towards transitioning from solely a tournament-focused organization to a true outreach organization through piloting and coordinating a biweekly science program for at-risk youth in Athens-Clarke County and mentoring new Science Olympiad coaches and teams. In addition, through our partnerships with other educational outreach programs, such as Thomas Lay After School Program, we have worked to integrate STEM into engaging activities, such as cooking and games.

Recognizing our need to expand outreach efforts beyond traditional methods, we worked within the community gauge the need and interest for Science Olympiad and STEM promotion. This led to our partnership with Athens Area Homeless Shelter to provide STEM education opportunities for students whose housing instability could pose a barrier to success. We have also hosted several Science Days at local public libraries. Combining our members' specific interests to develop exciting yet simple experiments, we have created and tailored our educational outreach and mentorship programs to fulfill our mission.

Organizational Structure

Given the scope of our work, in order to be successful, we depend on high-level student commitment and initiative. Being student-driven requires us to constantly learn and adapt. Our members assist in all tasks from organizing tournaments to writing challenging exams for the competitors. During tournaments, volunteers grade exams, proctor events, and act as team liaisons for operational purposes. We emphasize that even though volunteers have specific roles, on competition day, everyone must be willing to sacrifice and may even have to take on the roles of other members. This allows for all of our members to think critically and solve problems in a short amount of time as falling behind even five minutes can through the entire tournament off. Tangible

results have also been seen, including as our student-written exams have become models for less established tournaments around the state.

Our executive board is composed of a president, two exam directors (responsible for overseeing exam development), two building event directors (responsible for lab and engineering events), a treasurer (responsible for overseeing our account management, fundraising, and reimbursements), a volunteer director (responsible for recruiting and training volunteers), an outreach director (responsible for management and development of our additional outreach events), and a secretary (responsible for social media, organizational processes, and graphic design). While we all have prescribed roles, we work as a cohesive unit to identify needs, gaps, and weaknesses to deliver quality and timely products and events.

We also ask that all of our committed members contribute to existing ideas and generate new ideas to improve our program. One prime example of this is our work at the local homeless shelter. While there may be an executive board, all of our members serve critical roles and feel comfortable when discussing any issues or providing criticism.

Tournament Logistics and Planning Process

For our tournaments, months of planning and development go into the final product. Exam directors work with general body members to begin writing tests two months in advance. Building event directors work to design and build devices to prepare for their challenging events three months in advance. Our volunteer director spends two months recruiting high quality volunteers of all backgrounds across UGA.

In total, with over 450 competitors, 60-80 volunteers (including 25 organization members), an estimate of over ~400 hours goes into the development of tournaments. The tournaments themselves are all day affairs, running from 6AM to 6PM, with an estimate of ~700 volunteer hours the day of the tournament. This past fall, the tournament was hosted on Saturday, October 20, 2018, and our regional is upcoming Saturday, February 23.

Originally, the tournament was hosted across campus, in Chemistry, Biological Sciences, Forestry, and the Ramsey Center, but since the introduction of the Science Learning Center, we have developed a relationship with Campus Reservations, key staff, and lab managers to host the entire event at the SLC, with team bases across the lawn in Miller Plant Sciences. The ability to utilize state-of-the-art facilities and labs are an attraction for many teams. The Science Learning Center has been a central piece to our organization's success in past years.

Our invitational tournament relies on fees from competitors to cover the cost of the buildings, janitorial staff, exam materials, and food provided by the mother of an alumni of our organization. Our regional tournament is funded by the Georgia Science Olympiad organization, with funding based on team allocations to regional tournaments across the state.

Summary

The mission of Science Olympiad nationally is to improve the depth and quality of K-12 science education for all students, increase interest in science, and recognize outstanding achievement. Our organization works as a conduit for this mission in the Athens community and the larger regions of Georgia and beyond through our outreach initiatives and competitions. We aim to host high-quality tournaments that challenge students and encourage them to work hard and think deeply, before, during, and after the competition. This compels high school students to pursue learning outside of the classroom and develop independent study skills and passions that will persist throughout their lives, in addition to permeating into their day-to-day environments, spreading an interest in science to their friends and classrooms. The competition rewards exemplary performance for a large number of participants and provides learning opportunities for all. Beyond the tournaments, our outreach efforts ensure fostering an interest in science in the earlier stages of education for all types of communities. For many of our members, Science Olympiad was the highlight of our K-12 education. We hope that through our efforts promoting STEM and Science Olympiad, more students can fall in love with science.