



Arroyo Grande High School Eagle Robotics *FIRST* FRC Team 1388 Team Handbook

Mission Statement

The goal of Eagle Robotics is to provide high school students with the opportunity:

- To learn from mentors in the fields of math, science, engineering, and marketing
- To expose students to a real-life atmosphere in a hands-on engineering environment while working with mentors from the industry
- To meet the challenge of creating a robot from the initial design its completion as a workable machine
- To enter friendly competition with the desire to do well and overcome obstacles encountered

Finally, in the spirit of the *FIRST* program, have fun doing it!

US FIRST History

FIRST is an acronym of “For Inspiration and Recognition of Science and Technology”. Since 1989, *FIRST* has existed with a singular imperative focus: to excite more young people about the fun, accessibility, and importance of science and engineering. *FIRST* is a non-profit organization founded by Dean Kamen to generate interest and inspire students in the applications of mathematics, science, and technology. They work together with high schools, colleges, and corporate sponsors toward these goals through programs such as the *FIRST* Robotics Competition. See www.firstinspires.org.

Requirements for Joining the Team

The robotics team would like to allow any student who wants to join the team to be able to do so. However, participation on the team is not guaranteed. The following criteria are used when the team must make the difficult decisions of who will and will not be allowed to join (in the order listed):

1. Returning robotics students
2. Students whose parents participate as mentors
3. Freshman and sophomores, then juniors. Seniors by exception (see below)
4. Showing dedication through participation
5. Demonstration of skills

Seniors: because of the effort required to train new students (it can often take a full year of participation on the team to become a truly effective team member), the team is much more selective in accepting seniors onto the team. In particular, seniors who can demonstrate a skill needed by the team are much more likely to be accepted onto the team.

Team Member Grade Requirements

To maintain membership with the team, all team members must maintain grades in accordance with school policy.

Eagle Robotics Team Structure

The season will be split into four parts:

- Pre-Season: the time to fundraise and hone basic skills (roughly October thru December)
- Build Season: the weeks between competition Kickoff and robot completion, when the robot is designed and built (early January thru Competition Season)
- Competition Season: the period when the robot is entered in regional competitions (typically in March and early April)
- Post-Season: off-season projects, community events, and appreciation (year-round events)

Each season will have a different focus and require different commitments of time and accomplishments. The team has a few key goals:

- Student leadership and responsibility
- A positive atmosphere that encourages learning and trying new things
- High level of organization
- Diligent participation and dedication

To achieve these goals the team will be organized similarly to a small technical company. The team is organized as a school club. Club officers serve as the company leadership and are elected according to the club's constitution.

There will be student managers responsible for each sub-team, including: Public Relations, Design, Welding, Fabrication, Electrical, Programming, and Game Strategy. Each sub-team will require members to have a minimum set of skills developed during the pre-season and previous year's Build Season.

Most sub-teams cannot start designing and building the robot until the competition is announced. Much of the Pre-Season will be spent developing skills associated with each sub-team. Many people will be in multiple sub-teams throughout the season.

Club officers, along with the adult mentors associated with each sub-team, will interview students interested in the sub-team Leader position. A "hiring" decision will then be made.

Student Team Involvement

Involvement with Eagle Robotics provides excellent opportunities for higher learning. Being a team member can be included on college applications and resumes. The **FIRST** organization provides many joint scholarship opportunities for interested students.

This is a student driven program teaching students to be innovative, to think for themselves, and to solve problems. Students should come to each meeting with the tools needed to meet their responsibilities, such as keeping track of tasks, taking and storing notes, and any other required details of their role.

Much of the work done in Eagle Robotics will be done collaboratively, working side-by-side with adult mentors and other students. To have everything come together, teamwork is a must. Taking initiative is very important. Research the possibilities of a new idea and then present it to the team. Taking this kind of initiative and the ability to think independently demonstrates dedication to the team.

Behavior

In Eagle Robotics each student member is respected as a young adult. It is imperative to respect all team members as well as other individuals in which the team comes in contact. Professional, exemplary behavior is a cornerstone of **FIRST**. Eagle Robotics exemplifies Dean Kamen's proverbial message, "Act as if your grandmother were watching," At school, team members are always representing the team. Any team member receiving disciplinary actions for attendance and/or behavioral issues during the regular school day is subject to limitation or suspension from the team. While traveling and participating in

competitions, all students, regardless of age, are expected to adhere to the Eagle Robotics Competition Code of Conduct as well as the Arroyo Grande High School Code of Conduct. All AGHS school rules apply at all times.

At **FIRST** events, behavior is vital. Judges scrutinize how a team behaves. It is extremely important to always be polite and respectful to judges, other teams, and anyone else at the competition. Body language says a lot about a team member's attitude. Competitions are fun; it is important to show enthusiasm, stay engaged, and keep a positive attitude.

Financial / Fund Raising

The team must raise its own funds. The cost to attend competitions is the largest portion of the budget. The team has established fundraisers, such as the Poinsettia Sale, an annual mailing, and does other fundraisers as approved. All team members are encouraged to participate in the team's fundraisers as the success of these fundraisers determine the team's ability to afford to build a robot, attend competitions, and pay other related expenses.

Team members should anticipate expenses associated with travel to a competition. There is an offset of travel expenses for each competition that a team member attends. While the Team typically provides lunch at competition events, each team member is responsible for the cost of the evening meal and meals while in transit. If the team earns the honor of attending the FRC Championship, each team member attending this competition is responsible for the cost of their related travel, accommodations, and meals.

During Preseason, Build Season, and/or Competition Season, team member families will be asked to support the team one time with food. This may take the form of a meal, snacks, or funds to purchase something similar. The team organizes two potluck meals each year. For the Kick-off announcement of the **FIRST** Robotics Challenge in January (a required meeting), a potluck breakfast is organized. After the competition season is finished, and before the end of the school year, an appreciation Potluck/BBQ is organized for the team and its supporters.

Attendance

Being part of Eagle Robotics is a significant time commitment, and attendance is an important requirement for being on the team.

During Pre-season there are two meetings a week, one of which starts with a dedicated “All Team” meeting. These meetings will last between 2 to 3 hours. Students are expected to miss no more than 4 meetings during pre-season. After missing the 4th meeting, the student is subject to dismissal from the team.

During Build Season, there are meetings at least four weekdays a week for three hours or more, plus extended hours on weekends, typically held on Saturday. Exact times will be established prior to the start of Build Season. Time commitment during Build Season is much greater than during pre-Season and is dependent on many factors. Students will generally be expected to attend at least two meetings during the week (particularly the All Team meeting), plus Saturday. Some sub-teams have greater attendance requirements.

Excused absences include:

- Illness, but only if you are also out of school either the day of or the day after the meeting. You must inform the team of your illness, or your absence will not be excused.
- You have been excused by your sub-team lead or mentor as your participation on your schedule day is not required.

Excused absences do not include:

- Other school activities, including sporting events, band, etc.
- Work
- School work
- Family vacations

If you know in advance that you will be absent, please notify the team. As with any other team, those who are absent, whether excused or not, may be removed from the team regardless of other commitments. Commitment and participation are required.

Being late to meetings:

- Students are expected to be on time to meetings, which means being seated and ready to start BEFORE the meeting time. Being on time shows respect to both mentors and students.
- If you know you are going to be late to a meeting, coordinate in advance with the lead mentor, and your tardiness can typically be excused.
- A student who is chronically late, particularly when not coordinated with the team, may be dismissed from the team.

- If you arrive too late to have a meaningful impact, you will be considered absent.

Team members are required to sign in and sign out for each meeting. Another team member **cannot** do this for you.

Safety

Safety is a crucial component in Eagle Robotics. This responsibility lies with every member of the team. Each member is required to abide by the safety practices established. Almost all aspects of robotics involve the use of tools and equipment that are potentially dangerous if not used properly.

The Mentor Team views student members of Eagle Robotics as young adults, acting as employees of an organization. It is important to maintain a positive image in the community, for the sponsors and for **FIRST**. This begins with safety. All Eagle Robotics members must know and demonstrate safe and professional behavior wherever the team conducts its business.

Safety Certification

All members of the team are required to know the material in the **FIRST** Safety Manual, attend team safety training meetings, and pass the safety certification annually.

General Tool Usage

The use of tools is a necessity for most members of the team. Tools should always be used in a safe manner. Only adequately trained team members may use tools – no exceptions. Always remember that tool usage is a privilege and not a right. Talking to a mentor before using a tool is required.

Power Tool Usage

General tool rules also apply to power tools. Power tools usage is allowed only under the direct permission and supervision of an adult mentor.

Personal Safety

At no time will any student be put into a one-on-one situation with any adult or in any situation where the student feels uncomfortable or threatened. If a student ever feels uncomfortable with anyone on the team, including other students, mentors, parents, or teachers, he or she has the right to bring the issue to any responsible adult on the team.

Team members are responsible for their personal safety. This includes, but is not limited to, notifying an adult if you are leaving a supervised area and using the buddy system (same sex only). Team members are not to leave by themselves, for any reason.

Transportation

Transportation to and from meetings and team activities is the responsibility of each individual student.

The Seasons

Training

While no one is guaranteed a first choice of sub-team, being trained in multiple areas maximizes selection to the team. A first choice may not be granted in the current year but may be in succeeding years.

Pre-Season

All students are de facto members of the Public Relations sub-team. This means actively participating in fundraising activities and community outreach events. Selection for the Build-Team (spring semester) will be based in part on students' enthusiastic marketing. Since this program requires substantial funds to build the robot and travel to competitions, it is vital that all students are actively involved in helping raise these funds.

During the pre-season many will be pursuing sub-team training. Training in at least one sub-team is required to be considered for the Build Team; however, being trained in numerous areas demonstrates an eagerness to learn and desire to be a contributing member to the team. Since meetings are held less often during pre-season, it is important students set specific meeting times with Mentors or senior students to learn the needed skills.

Build Season

Build Season, which begins when the competition is announced, focuses on analyzing this year's competition, then moves into the processes of designing, building, and testing the robot.

During Build Season, sub-team Leads are responsible for:

1. Team Organization
2. Defining tasks to be accomplished
3. Identifying dependencies and communicating with other sub-teams
4. Identifying key milestones
5. Creating sub-team schedules outlining key tasks and milestones
6. Ensuring all members are fully engaged and actively participating
7. Providing regular status reviews

Sub-team members are responsible for:

1. Focusing and participating in daily goals
2. Seeking assistance from a Mentor or Sub-team Leader if they are not sure of their job
3. Informing Sub-Team Leaders, on a daily basis, of the progress and/or the completion of required tasks
4. Communicating with other members of the team in a professional manner

Competition Season

The Travel Team will consist of two separate groups made up of all students eligible and choosing to travel . First, the "Lead Team" will be the minimum number of students needed to operate and maintain the robot. Generally consisting of 6-8 students, this group will leave for competition a day before the rest of the traveling team members and be present for the entire competition. The rest of the team will leave a day later and be present only for the last two days of competition. All members of the Travel Team are expected to participate in these functions in some capacity (for example, everyone should actively participate in team spirit).

Criteria for selection to the Travel Team include:

1. Participation and attendance during Build Season
2. Safety record
3. Demonstrated team leadership
4. Technical aptitude — the ability to accomplish given tasks
5. Initiative in seeking work during Build-Season
6. Maturity and calmness under pressure
7. Team player — cooperatively working with others
8. Cooperate with both Mentors and Sub-team Leaders
9. Help other students
10. Follow advice from both Mentors and more experienced students

11. Strong representatives of Eagle Robotics
12. Maintaining a grade in accordance to school policy

Criteria for selection to the Lead Team includes:

1. Must meet all the requirements for being on the Travel Team
2. Must be one of the following:
 - a. Drive Team
 - b. Expert in a field

Competitions

The team generally attends two regional competitions each season. Location and dates are generally determined in October and November during **FIRST** competition selection. Competitions shall be selected to minimize student absenteeism; mitigating factors (e.g., cost, schedule, logistics, etc.) may be taken into account.

If qualified through competitions, the team may be eligible to participate in the FRC Championship. This traveling team will consist of a few members of the larger Travel Team (similar to the Lead Team for Regional competitions). Club officers and mentors will select this smaller traveling team. Only students who have attended a regional will be considered for this competition.

Typically, a **FIRST** competition will follow this schedule:

Wednesday – The Lead Team leaves for regional competitions after school.

Thursday - This is usually the initial day of a **FIRST** competition. Thursday is the designated practice day for the teams. Eagle Robotics initially sends only selected students into the venue to prepare the robot and set up the pits. Other members will remain outside until allowed in the venue. Once inside, members are expected to carry on the responsibilities that have been requested of them. Lack of participation will result in being eliminated from participating in any further competitions. Many of the team members at a competition will be required to investigate and scout other robotics teams. The remaining part of the team drives up on this day.

Friday - This is the first day of competition. All members are to wear the team shirt at all times during the competition. The pits usually open around 8:00 AM. Besides the few core technical and drive team members, all students are expected to do reconnaissance, which provides information about the functionality of other teams' robots. Students will be assigned teams to scout

before the competition. It is mandatory that students are present during the Eagle Robotics matches, supporting the team in the stands when the robot is competing. Qualification matches continue throughout the day. The pits close at approximately 5:00 PM.

Saturday - This is the final day of competition. After several qualifying rounds, alliance selection begins. This process involves the top 8 teams each selecting 2 other teams to compete in the elimination rounds. Elimination rounds follow until there is a final winning alliance. Afterward, the final awards ceremony takes place. The competition ends around 5:00pm.

Behavior at competitions is vital to what awards the team may win. Cheering is the key to success. This entails much more than just screaming loudly; it is about enjoying the event and participating in everything happening. While it's impossible to be standing up and chanting 100% of the time, all are expected to be cheering at every appropriate opportunity. Carrying on side conversations and being inattentive hurts the team image. We also encourage you to cheer for other teams as well.

As the date of the regional approaches, a detailed itinerary will be provided to the selected Travel Team. At this time, the required travel paperwork will be distributed, and the team member travel offset will have been established based on funds available. Deadlines will be announced to return the travel paperwork and travel offset. Late materials will not be accepted. In this situation the team member will be taken off the Traveling Team roster for that competition.

Post Season

Eagle Robotics does not end when the Competition Season ends. Throughout the year, we participate in community events – to advertise our team, participate in fundraisers, help other teams as needed, etc. We may meet in the post-season to brainstorm and possibly test new ideas for the coming year, discuss ways to improve the team, etc. This is a good opportunity for team members to step up and show their leadership abilities.

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