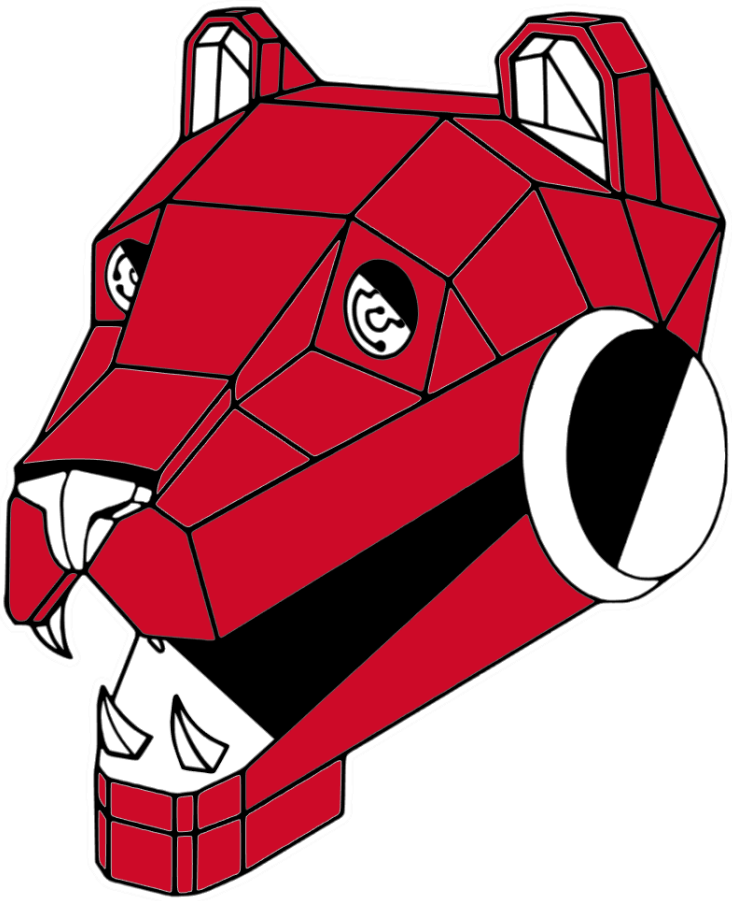

Panthinators Robotics
Welcome Packet

Please read completely
Sign and return the required forms within 1 week

Welcome Panthinators

Welcome to the Spring Lake Park Panthinator Robotics FIRST Robotics Competition (FRC) team 8234. This handbook is intended to contain the information needed for all 8234 team members to understand the administrative and logistical procedures for FRC Team 8234 Panthinator Robotics. It is updated yearly by Core Leadership to accurately represent current standards.

Our Mission

Our mission is to open students up to the possibilities of STEM through FIRST robotics. We promote an inclusive, team environment where students can safely explore new skills and confidently develop into innovative thinkers and compassionate leaders.

About FIRST

FIRST, For Inspiration and Recognition of Science and Technology, is a non-profit organization dedicated to inspiring young people to be leaders and innovators in science and technology. Through programs such as FIRST Robotics Competition and FIRST Lego League, students are encouraged to excel in the areas of science, technology, engineering, and mathematics. FIRST was founded in 1989 by Dean Kamen (inventor of the Segway and the insulin pump) and has since become an international organization that has reached hundreds of thousands of students from elementary school through high school. For more information, visit https://www.firstinspires.org/.

About FRC

FIRST Robotics Competition (FRC) is FIRST's oldest robotics program. It is designed to provide a rigorous engineering challenge to high school students as well as teach leadership, collaboration, and project management. Over three thousand teams have anywhere from fewer than ten to over one hundred students with guidance and support from adult coaches. Each year, every FRC team builds a robot to compete in a game released in early January.

Gracious Professionalism

As part of its mission to encourage student leadership and collaboration, FIRST promotes Gracious Professionalism as one of its core values in all levels of competition. Their website describes this ideal as follows: “With Gracious Professionalism, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process. They avoid treating anyone like losers. No chest thumping tough talk, but no sticky-sweet platitudes either. Knowledge, competition, and empathy are comfortably blended.”

Coopertition®

FIRST also promotes the philosophy of Coopertition®, which is described as “displaying unqualified kindness and respect in the face of fierce competition. Coopertition is founded on the concept and a philosophy that teams can and should help and cooperate with each other even as they compete. Coopertition involves learning from teammates. It is teaching teammates. It is learning from Mentors. And it is managing and being managed. Coopertition means competing always, but assisting and enabling others when you can.

Our Teams:

Business and Marketing team-

The business team is arguably one of the most important teams. Without the business team organizing the fundraising and writing the grants, we wouldn’t have the funds needed to keep the team running. If you are interested in accounting, business, social media, graphic design, or photography this team is perfect for you. There are several jobs that business team members are tasked with, often split up into 2 groups, but coming together to help fill any gaps that are needed throughout the year.

- **Business members** are the ones who are tasked with managing the team's budget and financial goals. Securing funding is crucial to help us cover the team expenses, from parts for the robot to competition fees, allowing the team to continue to function and compete. This is done in a few ways:
    - **Fundraisers-** You will work to find and organize fundraisers. Once a fundraiser is decided, you will design the flyers to advertise it, keep track of sales, and help organize and distribute any products after sales.
    - **Grants-** Search to find grants we qualify for and apply for them. Once applied for, tracking the grants that have been applied for and whether we have been approved.
    - **Sponsorships-** Identifying and approaching potential sponsors, developing sponsorship proposals and keeping track of the sponsors and money received.
- **The Marketing Team** are the ones who are tasked with promoting our team. This is done through creating promotional materials, running our social media accounts, creating content for our website, photographing the team during meetings and events, writing and sending newsletters.

There are also other very important roles that the Business and marketing team as a whole take on. Such as designing the yearly shirts, creating button designs, graphics for the websites and flyers. And most importantly outreach to the community through planning and organizing community service

events, managing outreach activities, finding and setting up events such as parades and vendor events.

Build Team-

The build team is in charge of creating the final physical product. This is done by using applied mechanical engineering and using electronics and wiring so it can run code. If your interest includes power tools, wiring electrical, and real life applications of engineering then you should consider the build team. There are a lot of things that always need to get done, we are very hands on, and if you don't know anything we'll teach you!

- **Mechanical engineering** is applied when building the various projects we build throughout the year and that is especially important when prototyping as we need to see how the theoretical design will function in real life with friction and gravity.
- **Wiring** is very important as the robots would not function without it. We wire both power and communication throughout the robot, having to trim and add connectors to wires, run them in an understandable way while taking into account how the robot would move, and control them by setting them in a fixed place.
- **Organizing** is so crucial for speedy assemblies and when not properly taken care of our closet becomes a mess. We are also usually in charge of the cleanliness and organization of the closet because if we don't know what's happening in there we won't get anything done
- **Tool use** will be properly trained on every power tool and woodshop tool we have. Common tools include drills, table saw, bandsaw, dremel, and basic tools like wrenches and screw drivers.

Code Team-

The code team is in charge of creating, uploading, and testing the code/software needed for the robot to function. This includes setting up the programs needed to use the robot (including uploading our code onto the robot and other hardware checks), writing the various commands & subsystems needed to tell each hardware component what to do, and creating tele-op (human-controlled) actions which happen after some human input (and more!). We also plan to create autos (automatic driving of the robot in the first 15s of the game) and use vision (cameras on the robot which can track tags on the field) to further our abilities on the field this year.

In order to work on some of these really cool things, you will need to learn some Java, the programming language we use. However, we will help you learn Java to the extent that you need to code the bot, and

lots can still be learned without any Java experience! If you do have coding experience already, fantastic; for those that don't, you will be taught everything you need to know.

- Goals for this year
    - Pre-Season: Train our team up to the extent that they understand the Zero-to-Robot & Programming Basics documentation, and all the necessary Java needed to program the robot.
    - Have subteams learn how to work vision and autos.
    - Season: Code a working robot, with the entire code team involved (at least in part) in its software development
    - Add consistently working vision to the robot that we can use to gather field data for more accurate movements
    - Create working autos that function on the field

CAD Team-

Computer Aided Design (CAD), we do strategic analysis to find the best robot archetype. Then we plan out a design for the robot. After that we make a high detail CAD model of the robot that includes everything from the boxtube to the individual rivets.

Pre Season

- CAD and design training!!!!
    - Required before we can do anything else
- Projects
    - Demo robot
    - Robot upgrades
    - Individual Subsystems

Build Season

- Week 1-2
    - Block CAD only (ideal finish is early to mid week 2)
- Week 3-4
    - 95-99% of functional CAD is done
- Week 5-comp
    - Subsystem redesign
- Week 3-4 is when you will put the most hours in

What is expected of you

- Complete all offseason training
- Work on robot CAD at home
    - Around 4-6 hours during the beginning of the season
- To learn about designing for manufacturing and coding
    - We will have training for this

Drive Team-

The Drive Team is primarily about driving the robot at competition, but it also has aspects of helping in both the design and build process in order to make sure the driver is understanding how to use the bot, and if the bot will work for the driver's skill. The drive team also coordinates scouting to ensure important information is collected from other teams for strategizing.

Drive Team has lots of training with driving the bot when in and off season, along with having to learn the rules of the game and strategize with your fellow team members and other drive teams when competition rolls around.

Not every member of the drive team needs to do driving, there are also roles in other areas.

- The coach is the person who is scanning the field for game pieces or opposing robots, telling the primary and secondary driver about what they see.
- The primary driver is the one actually controlling the robot, the one that makes the robot move around the field, making sure to pay attention to both the field itself and what the coach is saying.
- The secondary driver is the one that more often than not will control the moving elements of the robot itself, things that allow the bot to actually participate in the game itself.
- The human player is a person who will be standing near the field doing random tasks that correlate to the game, usually involving a game piece or a way to interact with the field in some way.

The drive team as a whole cannot operate without every member of the team doing their part, if even one of the members is uncoordinated or unwilling to do the job, then the drive team won't be at its best during the match.

Inventory and Asset Management Team-

The Inventory and Asset Management team is responsible for maintaining a comprehensive and organized catalog of all team resources, including parts, raw materials, tools, and electronics. Our mission is to support the technical and build teams by ensuring they have the right supplies at the right

time, minimizing waste, and preventing delays caused by missing components. We utilize efficient tracking systems to manage stock and provide transparency to the entire team.

Inventory tracking: Utilize a digital and/or physical system (e.g., spreadsheet, database, kanban board) to track all parts and materials. This includes recording items purchased from suppliers like AndyMark and REV Robotics, as well as components from the Kit of Parts.

Parts management:

- Organize and label all parts in the workshop and pit, ensuring that components are easy to find and access.
- Replenish frequently used items, such as nuts, bolts, washers, and electrical connectors, to prevent shortages during the critical build season.

Tool organization:

- Maintain a clean and orderly tool area in the shop and at competition, with clear labeling and a "check-in/check-out" system for specialized equipment.
- Perform regular checks to ensure all tools are present and in working order.

Supply chain and purchasing:

- Work with sub-team leads to forecast material needs and place timely orders to avoid delays.
- Track purchases and manage the inventory budget in collaboration with the Business sub-team.

Competition support:

- Create a well-organized and clearly labeled system for packing the robot cart and pit materials for competition.
- Manage spare parts and tools during events to ensure the drive team and mechanical members can quickly perform repairs and maintenance.

Skills developed

Members of the inventory team gain valuable skills in:

- Project management and organization
- Attention to detail
- Database and spreadsheet management
- Process and workflow optimization
- Communication and collaboration with other sub-teams

<u>Safety Team-</u>

- **Safety program mission and philosophy**

    - **Mission statement:** To foster a culture of safety for all team members and mentors in the workshop, at events, and in their daily lives, while following and promoting the principles of Gracious Professionalism®.
    - **Philosophy:** Safety is a priority over speed. All members are responsible for creating a safe environment and looking out for one another.
- **Safety Team Leadership**
    - Leads the team's safety initiatives, including managing the safety manual and binder.
    - Conducts and/or coordinates regular safety meetings and training sessions.
    - Serves as the main point of contact for safety advisors at competitions.
    - Oversees the "pit crew" to ensure the workspace and tools are maintained and organized at all times.
    - Maintains and stocks the team's first-aid kit and personal protective equipment (PPE).
- **Safety Mentors:**
    - Sets a positive example for all students and practices safe behavior consistently.
    - Provides guidance and encouragement to the safety team and the entire team.
    - Helps oversee safety during robot fabrication, especially when students operate hazardous machinery.

Team Member responsibilities-

- Comply with all safety procedures established by the team and the official *FIRST* guidelines.
- Immediately report any unsafe practices or hazardous conditions to a Safety Captain or mentor.
- Ensure they and others wear appropriate PPE, including safety glasses and closed-toed shoes, in designated areas.
- Demonstrate safe behavior and maintain an orderly workspace, especially in the pit.
- Must complete a required safety training course before operating any tools or machinery.
- Must be supervised by an experienced team member or mentor until they demonstrate proficiency and safe practices.

Required forms below

Spring Lake Park Robotics Competition Agreement

I agree to abide by the following rules and guidelines while at FIRST Robotics Competitions as a member of the Panthinators Robotics team:

- I will follow all school and team rules and policies.
- I will follow all the teacher, coach, mentor, referee, and FRC official's directions.
- I will wear closed-toe shoes, and appropriate clothing for the environment.
- I will follow all safety protocols including wearing safety goggles while in the pit and on the field.
- I will not leave the arena unless accompanied by either Mr. Mack, Mr. Greene, or my own parent/guardian after communicating with Mr. Mack or Mr. Greene.
- I understand my bag may be searched by security at competition sites.
- Lunch will be provided when necessary. I am responsible for ensuring I have the means to obtain lunch from the concessions (about $15 – 20 per day) or that I have made arrangements with Mr. Mack or Mr. Greene if I am not eating the provided lunch.
- I understand that I will be representing the Spring Lake Park school district and will act in a professional and respectful manner.
- I understand that it will be my responsibility to make up for the missing learning activities from school.
- I have read, agreed to, and signed the Panthinators Code of Conduct form, and will abide by the team expectations.

Keep the above copy for your records

Detach and return the bottom portion to Mr. Mack or Mr. Greene

I have read and agree to abide by the **Spring Lake Park Robotics Competition Agreement**:
Student name (printed):
Student name (signature):

Date: _____

I have read through the agreement with the above student:
Parent/Guardian name (printed):
Parent/Guardian name (signature):

Date: _____

Panthinators Member Emergency Contact Form

Student's Name:_____ Grade: _____

Home Address:_____

Home Phone:_____ Cell Phone:_____

Email Address:_____

Parent/Guardian 1 Emergency Contact

Name:_____

Relationship to Contact:_____

Home Phone:_____ Cell Phone:_____

Email Address:_____

Parent/Guardian 2 Emergency Contact

Name:_____

Relationship to Contact:_____

Home Phone:_____ Cell Phone:_____

Email Address:_____

Allergies (Food, insects, Etc):_____

_____

If your child has a medical issues that we should be aware of, or if you have any other comments or concerns, please include them here:

_____
_____
_____
_____

Anything else we need to know about your child:

_____
_____
_____
_____

PANTHINATOR ROBOTICS TEAM 8234 - SAFETY CONTRACT

1. **I will use safety glasses and any other necessary safety equipment at all times in work areas.**
2. **I will be issued a new pair of safety goggles and protective bag.**
3. **I will take care of and maintain the safety goggles. If they are lost or stolen I will be responsible for buying a new pair whether from a store or from the team at a cost of $5.**
4. **I will use caution and common sense while working.**
5. **I will be responsible for proper care and maintenance of tools and equipment.**
6. **Before using any tools or equipment in the shop, I will first get the permission from an adult in charge.**
7. **I will wear suitable attire to use shop equipment (i.e. no sandals, baggy clothing, loose jewelry etc.).**
8. **To prevent accidents, I will always clean up after using any tools in the shop.**
9. **I will use all tools for their intended purpose.**
10. **I will look out for the safety of my fellow Panthinators and always encourage safe conduct.**

Student Signature_____ Date_____

Parent Signature_____ Date_____

Code Of Conduct

Member Expectations

In order to remain a member of PANTHINATORS, FRC Team 8234, all members are expected to follow the listed expectations.

Some initial standards that must be met:

- Forms
  - Submit all required forms by the deadline. This includes those listed on the registration page on our website, field trip forms, and others.
  - Register online with FIRST, including the FIRST media consent form, which is separate from the team's forms.

Grades

Students are expected to balance their team responsibilities with their schoolwork. Academics, schoolwork and associated grades should be considered a priority over robotics. Students must maintain satisfactory progress toward graduation, per MSHSL guidelines. If your academic progress is suffering due to robotics, raise the issue to team leadership, and the team will support adjusting your team participation to ensure your success academically.

Attendance Expectations

Members are expected to attend at least 75% of scheduled team meetings during build season and fairly active during the off season. Being physically present is just the start - punctuality, productivity, and active engagement are equally important. If you cannot attend the full length of a meeting, or maintain the attendance standard, please arrange this in advance with one of the Coaches or Mentors. Accommodations will be made for virtual attendance upon request and approval.

Character of PANTHINATORS Members and Code of Conduct

Team member conduct is subject to all school, local, state, and federal regulations. In addition, team members are subject to the following team-specific code of conduct expectations.

1. *Allow each team member to be their authentic self without fear of bullying or teasing. Be inclusive of all team members.*
2. *Bullying, harassment, threats, violence, and hate speech will not be tolerated, whether during robotics or outside of robotics.*
3. *Gossiping and spreading rumors about other team members is unacceptable.*
4. *Push yourself to do the best you can to help our team succeed.*
5. *Be willing to learn and take constructive criticism from team members and Mentors.*
6. *Come in with a positive attitude and enjoy the experience of robotics. Refrain from negativity towards team members and our projects.*
7. *Engage with fellow team members and be open to creating new friendships.*
8. *Uphold honesty, ethics, and trust, creating a reliable and respectful environment.*
9. *Set high goals and work hard to achieve them.*
10. *Celebrate accomplishments, whether they are personal, a teammate's, or the team's.*
11. *Be self-driven and motivated. Come prepared to work hard and share your ideas. If you are not busy, seek tasks from peers, leaders or mentors.*
12. *When at robotics, it is robotics time. If there are tasks to be completed, those need to be completed before having social time. If you have homework, find a spot in one of the flex areas away from the team to prevent distractions of other members and yourself.*
13. *No phones or Ipads during meetings unless needed for team work or directed by mentors. This includes use for games, unrelated social media, youtube, etc.*
14. *When at meetings, stay within the designated areas, unless given permission by a mentor. Designated spaces include the shop, Room B136, the computer lab and flex space.*
15. *When at meetings or events, no roughhousing, running around, or other unsafe behavior.*
16. *Clean up after yourself at each meeting. The last 15 minutes of the meetings are dedicated to clean-up. Put away tools and equipment in their designated space and tidy up any messes made. Put chairs up if needed. Leave the spaces better than you found them.*
17. *Do not attend meetings or events if you are exhibiting symptoms of a contagious illness, such as fever, vomiting, diarrhea, or a new rash.*
18. *Student-driven, mentor-led: Students are empowered to lead the team, while benefiting from the guidance and expertise of mentors.*
19. *Respect and listen to your adult mentors. They are there to guide and teach you and should be treated no differently than a parental figure or teacher.*

PDA Policy

All forms of public displays of affection (PDA) are considered inappropriate and are prohibited at any team event. If you are in a relationship, do not let it interfere with your participation in team activities.

Failure of a student to adhere to this code will result in initial warnings from mentors. If an inappropriate situation arises in which a mentor feels it is necessary to intervene in the moment, they will do so.

Team Dress Code

All members must adhere to the following dress code:

- Members must wear clothing that covers one's undergarments and private parts.
- Members must NOT wear clothing that depicts violence, obscenities, pornography, nudity or sexual acts in any manner.
- Members must NOT wear clothing that displays hate speech targeting groups based on their race, ethnicity, gender, sexual orientation, gender identity, religious affiliation or any other protected group.

In addition, when working on or near the robot or other tools:

- Long hair must be tied back. Jewelry is not acceptable if it can entangle into robot parts or into machinery, and is generally discouraged.
- Closed-toe, closed-heel shoes and safety glasses must be worn at ALL times (i.e., no sandals, no crocs, etc.).
- No loose clothing or hoodie strings.

Fundraising and Non-competition events

Every member is required to participate in both our Fall and Spring fundraisers, whether through selling of goods, or a cashout option.

Every member is required to attend at least 1 non-competition event per season, such as; community outreach, STEM nights at the elementary schools, parades, vendor events, etc.

When attending non-competition events members are expected to actively participate. Be respectful of the event, your teammates and participants. Wear your PANTHINATORS gear to proudly represent our team.

Consequences

Violations of any of the above member expectations will be addressed through a progressive disciplinary review based on the seriousness of the behavior, recognized effort by the member to rectify the behavior, and any repeated violations. Violations may result in the inability to participate in team competitions or more.

Initial Violation

The team member will be talked to and reminded of the signed code of conduct. They will be informed of what will happen if additional violations occur. Parents will receive an email notifying them of the violation.

Second Violation

The team member will be talked to, reminded of the signed code of conduct and will be informed of what will happen if additional violations occur. They will be asked to leave for the day. Parents will receive an email notifying them of the violation.

Third Violation

The team member will be talked to, reminded of the signed code of conduct and will be informed of what will happen if additional violations occur. They will be asked to leave for the day and they will lose the privilege to attend the regional competition. Parents will receive an email notifying them of the violation.

Final Violation

The team member will be removed from the team and parents will be notified.

Keep the above copy for your records

Detach and return the bottom portion to Mr. Mack or Mr. Greene

I have received, read and understand the **Panthinators Robotics Code of Conduct**.

By signing below, I am agreeing that I will abide by this policy.

_____ _____

Student signature Date

_____

Printed Name

_____ _____

Parent/Guardian signature Date

_____

Printed Name