

# 2022 ROBOTICS STATE TOURNAMENT

Sponsored by *FIRST* in Upper Midwest and Presenting Partner-MSHSL

## Season Begins

The season shall correspond with all dates and guidelines outlined by the *FIRST* Robotics Competition.

## Contest

All FIRST robotics teams in Minnesota are eligible to participate in the 36-team MSHSL State Tournament held on May 7<sup>th</sup>, 2022 at Williams Arena on the University of Minnesota Twin Cities campus. Teams will qualify for the event based on their performance at *FIRST* regional events, regardless of the location of those events.

Teams will be charged \$500 entrance fee and are responsible for their own transportation, food, and housing expenses. Please note that unlike other MSHSL activities robotics teams do not pay an annual registration fee when they register with MSHSL. This entrance fee will be the only MSHSL fee for robotics.

Team load-in, pit setup, robot inspection, and field connection testing will occur on Friday, May 6<sup>th</sup> in the evening.

## Robot Requirements

Teams will follow all the rules and guidelines of the FIRST Robotics Competition. Each robot must pass inspection to compete.

## Team Membership

All students eligible for membership on a FIRST Robotics team will be eligible for the State Tournament. Students must be in Good Standing as defined by MSHSL rules to participate. Exception: No students in grade 6 or under will be eligible.

## Regions

All Minnesota robotics teams belong to one of eight geographic regions. The Minnesota Robotics Coaches Association with approval from MSHSL assigns teams to regions with the goal of creating meaningful geographic groups with a similar number of teams.

Region assignments are available at <https://www.mshsca.org/regions>.

## MSHSL Eligibility Information Brochure

Prior to participation in the state co-sponsored event, the student and one parent or guardian must sign and return one copy of the 2022 Robotics Eligibility Form to the student's school or the lead team mentor. The student and parent or guardian signature will certify that they have read, understand, and agree to abide by the information provided. The form may be found here:

<https://www.mshsl.org/sites/default/files/2021-04/2021-2022-mshsl-elig-brochure.pdf>

## State Tournament Qualification

Teams qualify based on their performance at their initial *FIRST* Robotics Competition regional event. Teams earn state tournament points as per the table below. State tournament points are based on the district point system outlined in section 11.8 of the 2022 FRC Game Manual, with some modifications because teams only earn points for the first event they attend.

Once all regional events have concluded and *FIRST* in Upper Midwest has calculated state tournament points the 36 slots available at the MSHSL State Tournament are assigned as follows:

- The two highest ranked in each region will receive an invitation
- The remaining teams receive an invitation in ranking order regardless of region

Many of the point calculations are manual operations. Consequently, there may be errors in point totals. *FIRST* in Upper Midwest and MSHSL will make every effort to correct any errors. Questions about rankings should be sent to [StateRankings@mnfirst.org](mailto:StateRankings@mnfirst.org).

Category	Points
Qualification Round Performance	$QualificationPoints(R, N, \alpha) = \left[ InvERF\left(\frac{N - 2R + 2}{\alpha N}\right) \left(\frac{10}{InvERF\left(\frac{1}{\alpha}\right)}\right) + 12 \right]$ <p>(For a typically sized event, this will result in a minimum of 4 points being awarded for Qualification round performance. For events of all sizes, a maximum of 22 points will be awarded.)</p>
ALLIANCE CAPTAINS	<p>Equal to 17 minus the ALLIANCE CAPTAIN number (e.g. 14 points for ALLIANCE #3 Captain)</p> <p>For Single-Day Events, ALLIANCE CAPTAINS #1, 2, 3, and 4 receive 16, 14, 12, and 10 points respectively.</p>
Draft Order Acceptance	<p>Equal to 17 minus the Draft Order Acceptance Number (e.g. 12 points for the team that is fifth to accept an invitation)</p> <p>For Single-Day Events, first through eighth picks receive 16, 14, 12, 10, 8, 6, 4, and 2 points respectively.</p>
Playoff Advancement	<p>All teams on the ALLIANCE winning a particular playoff series, who participate in MATCHES with their ROBOTS, receive 5 points per MATCH won. In most cases, teams receive 10 points at each of the Quarterfinal, Semifinal, and Final levels, unless a BACKUP ROBOT is called in to play.</p>

<b>Judged Team Awards</b>	10 points for the Chairman's Award 8 points each for the Engineering Inspiration and Rookie All Star Awards 5 points each for all other judged team awards
<b>Hall of Fame</b>	Teams that entered the FRC Hall of Fame within the last 5 years and are thus ineligible to apply for the Chairman's Award will receive 5 points.
<b>Team Age</b>	5 points for and team that was a rookie in 2020, 2021, or 2022

### Detailed Point Descriptions

The 2022 FRC Game Manual includes detailed descriptions of each point category:

- Section 11.8.1.1 describes Qualification Round Performance
- Section 11.8.1.2 describes ALLIANCE Selection Results
- Section 11.8.1.3 describes Playoff Round Performance
- Section 11.8.1.4 describes Judged Team Awards
- Section 11.8.1.5 describes Team Age

FUM and MSHSL would like to reiterate from section 11.8.1.4 that the points earned for team awards cannot capture the value that the teams winning those awards bring to our program, nor do the points represent the value of the awards to FUM, MSHSL, or *FIRST*.

### Tiebreaker

If any teams have the same number of points, the following hierarchy of tiebreakers will be used to break the tie:

<b>Sort Order</b>	<b>Criteria</b>
<b>1<sup>st</sup></b>	Total Playoff Round Performance Points
<b>2<sup>nd</sup></b>	Best Playoff Round Finish at a single event
<b>3<sup>rd</sup></b>	Total ALLIANCE Selection Results Points
<b>4<sup>th</sup></b>	Highest Qualification Round Seed or Draft Order Acceptance (i.e. Highest ALLIANCE Selection points)
<b>5<sup>th</sup></b>	Total Qualification Round Performance Points
<b>6<sup>th</sup></b>	Highest Individual MATCH Score, regardless of whether that score occurred in a Qualification or Playoff MATCH
<b>7<sup>th</sup></b>	Second highest Individual MATCH Score, regardless of whether that score occurred in a Qualification or Playoff MATCH
<b>8<sup>th</sup></b>	Third highest Individual MATCH Score, regardless of whether that score occurred in a Qualification or Playoff MATCH
<b>9<sup>th</sup></b>	Random Selection

### **Alternate Teams**

If, prior to the competition, any team is unable to participate or a qualifying team declines their invitation, an alternate will replace that team. Teams must accept their invitation to the MSHSL Tournament within one week of final notification.

Alternate teams are selected as follows:

- If the original team's region no longer has two qualifying teams, the alternate is the next highest ranking team from that region
- Otherwise the alternate team is the next highest ranked team regardless of region

Alternate teams will have 48 hours to respond to an invitation.

## ***Tournament Details***

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### **General**

Competing teams will exhibit the qualities of Gracious Professionalism® and compete in the spirit of Coopertition®.

### **Disputes**

Any disputes arising during the competition shall be reported to the Head Referee and Tournament Director for resolution.

### **Awards**

Trophies: Awarded to the three teams in first, second, and third place ALLIANCES.

Medals: Awarded to the members of the three teams in first, second, and third place ALLIANCES (25 per team). Additional medals can be purchased after the event.

Certificate of Participation: Each team qualifying for the state tournament will be given 25 certificates of participation. Additional certificates can be purchased after the event.

## Event Schedule

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### Friday Night

5:00pm – 9:00pm

- Load-in
- Pit setup
- Registration
- Robot inspection
- Field connection test
- Field calibration

### Saturday

<b>7:30am</b>	Pits open
<b>7:45am</b>	Driver's meeting
<b>8:15am</b>	Opening Ceremonies
<b>8:30am – 12:30pm</b>	<p>Qualification Rounds</p> <p>A random draw will determine alliance team composition for qualification rounds. The number of qualification matches for a 36-team field will be based on approximately 6 hours of play. Details of the qualification round schedule assignment are available in section 11.6.2 of the 2022 FRC Game Manual.</p>
<b>12:30 – 1:30pm</b>	Lunch break
<b>1:30pm – 3:30pm</b>	Qualification Rounds continue
<b>3:30pm – 3:45pm</b>	<p>Alliance selection</p> <p>The top <b>four (4)</b> seeded teams become ALLIANCE CAPTAINS and selects their ALLIANCE partners for the playoff round following the process described in section 11.7.1 of the 2022 FRC Game Manual.</p> <p>These alliances will be <b>three team alliances</b> unless an alliance later calls in a backup.</p>
<b>4:00pm</b>	<p>Playoff round</p> <p>The playoff round consists of semi-finals and finals. Play will be best 2 out of 3 with a minimum of 6 minutes between matches.</p>

The semi-finals matchups will be:

#1 seeded ALLIANCE against the #4 seeded ALLIANCE

#2 seeded ALLIANCE against the #3 seeded ALLIANCE

The finals are best 2 out of 3 with the two winning ALLIANCES from the semi-finals round.

Between the first and second finals there will be **a single** match for third-place between the two ALLIANCES that were knocked out in the semi-finals.

**5:15pm**

Estimated time of awards ceremony. The awards ceremony will begin immediately following the end of playoff matches.