

Final – February 27, 2019

STELLAR XPLORERS V



The National High School Space Challenge National Finals Rules and Procedures



The Air Force Association

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WELCOME

StellarXplorers Program Office

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This document outlines the Rules and Procedures for the **National Finals of StellarXplorers V**. The Rules and Procedures regarding teams, competitors, Team Directors, Mentors and Team Assistants, as stated in the Official StellarXplorers V Rules and Procedures dated May 4, 2018, are still in effect for the National Finals. Any discrepancy between this document and the May document should be brought to the immediate attention of the StellarXplorers Competition Staff for resolution.

If the rules of the school or organization to which a team belongs are more restrictive than the StellarXplorers rules, then the school's or organization's rules will take precedence.

Future Changes to this document will be posted on the StellarXplorers website (www.stellarxplorers.org) and distributed via email to the StellarXplorers Team Directors of the National Finalists.

Submit recommendations for updates or changes to this document by email to Mr. Tim Brock at brock1874@bellsouth.net.

Revisions

None

PREPARATION

Team preparation is conducted locally. Preparing for the National Finals means ensuring that basic technical materials are in place, and training students on space-related concepts.

TRAINING

The best way to train for the National Finals is to conduct scenarios like those in the Practice and Qualification Rounds of StellarXplorers V. Teams must coordinate planning in all three areas of space operations that were performed in the Qualification Rounds: Mission Orbit Planning, Satellite Design and Launch Operations. Teams might consider assigning different areas of space operations to different team members, or the team can plan to devote a certain amount of time to each area and work them as a group in order. Teams should also practice preparing the PowerPoint-based Mission Debriefing that will be required. There will be an individual, closed book Academic Quiz for the National Finals and each team member must take it individually. Use the Quiz Study Guide located on the StellarXplorers Website to prepare.

Note: Teams prepare for the scenario competition by practicing with STK with the Educational License.

COMPETITION

Each team competes by successfully completing a Mission Requirements Scenario, taking the Academic Quiz, and by preparing and presenting a Mission Debriefing.

In the Mission Requirements Scenario, the team must determine the best satellite orbit, spacecraft design, and launch vehicle to achieve a specific set of mission requirements. Requirements could include data collection points or areas on the earth, satellite hardware requirements, orbit restrictions, satellite tracking station locations, pre-defined satellite data collection periods, and other dynamic system requirements and environments.

Teams will compete for an eight consecutive-hour period. Prior to this eight hour competition, the team will receive a 30-minute Mission Requirements Briefing presented by the StellarXplorers Staff. The teams will also receive a Mission Requirements Package which will identify all requirements for the mission orbit, satellite design and launch vehicle requirements. The staff will answer Competitors questions on the requirements during this period. Questions and answers will be made available to all teams. The StellarXplorers Staff is available for technical support during the competition window.

During the competition period, the teams will also prepare a PowerPoint-based Mission Debriefing. Each team's 13-minute briefing will be presented on the second day of the competition. The Mission Debriefing will contain, at a minimum, the following information:

1. Team Name & Team Members to include a Team Picture
2. Mission Scenario Solution
3. Solution Method Used by the Team
4. Summary

Teams are free to add additional items to their briefing to include charts, tables, or graphics, but cannot add additional charts to the briefing. A PowerPoint template for the Mission Debriefing will be provided to each team at the start of the Competition Period. The five charts to be presented during the briefing are in Appendix I of this document.

At the conclusion of the eight-hour competition period, all teams will deliver to the Staff data showing the mission orbit, spacecraft equipment selection, and launch vehicle that they have selected and other data outlined in the Mission Requirements Briefing and Package. They will also deliver electronic copies of the Mission Debriefing they prepared.

COMPETITION TIMELINE

Friday, April 11, 2019	
7:45 AM	Bus to Space Foundation Discovery Center (Business Casual)
	Breakfast at Space Foundation Discovery Center, Area 51
8:30 AM	Welcome & Mission Requirements Briefing; Package Distribution
9:00 AM – 5:00 PM	Competition Period (Teams Develop Mission Plan & Debriefing)
11:30 AM – 1:00 PM	Lunch (Concurrent with Competition; Served in Area 51)
5:00 PM	Teams Turn In Mission Solution & Mission Debriefing Package
5:30 PM	Bus to Bus to Dinner at Great Wolf lodge (GWL)
6:30 PM	Dinner (Business Casual)
Saturday, April 12, 2019	
7:30 AM	Breakfast at Great Wolf Lodge, Northwest Territories
8:40 AM – 12:00 PM	Mission Debriefings at GWL / Red Oak II (Team Dress)
8:40 AM – 12:00 PM	Individuals Academic Quiz at GWL / Red Oak I
10:00 AM – 11:30 AM	Team Directors Meeting (Great Wolf Lodge, Lobby)
11:30 AM	Lunch at Great Wolf Lodge
1:00 PM	Free time
6:00 PM	StellarXplorers V Reception GWL/ White Pine Ballroom (Business Attire)
7:00 PM	StellarXplorers V Awards Dinner, GWL, White Pine Ballroom

Dress: Team Dress (Business Casual) for the competition on Friday and Saturday morning is “polos” (collared shirts) and “dockers” or the equivalent. Long pants, reasonable skirts, no shorts, etc. JROTC members may wear their uniforms: long sleeve / epaulets or equivalent. All must wear proper shoes, no “flip-flops.”

Business Attire: All team members and staff of all ages must comply with the Space Foundation’s dress code: suit / jacket and tie for males; equivalent business attire for females. Service Dress for CAP/JROTC members is acceptable. This is the dress code for the Space Symposium Exhibit Hall Tour, Wednesday’s site visits, and the StellarXplorers V Reception and Dinner.

Competition Results: Announcement of the results is contingent on a variety of factors including inquiries and appeals. The goal is to announce the results at the Awards Dinner Saturday Evening. The Competition Results will contain the following information: (1) The team scores; and (2) Feedback on areas for improvement during future competitions.

SCORING

The following rules govern scoring for the competition. Seventy percent (70%) of the team's score will be based on their results in the Mission Requirements Scenario, twenty percent (20%) will come from the preparation and presentation of the Mission Debriefing, and ten percent (10%) will come from the Academic Quiz.

Mission Requirements Scenario

Specific scoring for the scenario will be presented in the Mission Requirements Briefing and the Mission Requirements Package given to each team at the start of the competition period.

In general terms, teams will be evaluated on the following areas:

1. Achieving Mission Requirements
2. Quality of the Mission Data
3. Timeliness of Mission Data
4. Ability to Meet Performance Objectives

Mission Debriefing

The goal of the Mission Debriefing is for each team to summarize their approach to solving the Mission Requirements Scenario in a brief, professional, oral report format.

MISSION DEBRIEFING SCORING CRITERIA (20 points):

1. PowerPoint Presentation Slides (3 points): Did the team only use the Slide Templates provided? Did the team provide all the requested information? Teams are allowed to add extra items to the four slides, but cannot add more slides?
2. Team Solution Method (12 points): Does the team provide a complete, clear, and logical explanation of their team's organization and solution method? **Note:** This is 60% of the overall Briefing grade, so make sure you spend the most time on this topic.
3. Overall Effectiveness (5 points): Does the team show enthusiasm for the topic, maintain audience attention, and capture the audience's attention? Team members may occasionally refer to notes or the PowerPoint slide(s) during the report but should make effective eye contact with the audience (i.e. not reading from slides or notes). Is the Debriefing delivered in a smooth manner indicating team members have practiced the oral report?

Referring to the Debriefing charts in Appendix I, teams should have the Basic Information for use in Slide #1 collected prior to the competition. They should practice their briefing using a solution from one of the Practice or Qualification Rounds.

Academic Quiz

The Quiz will be an individual quiz and not a “team” quiz. The 10-question Quiz will be a multiple-choice quiz on material from *Understanding Space*. Each team member must work alone and cannot confer with other team members. This will be a “closed book” quiz. Therefore, no notes or study materials may be used. Each member will have 15 minutes to answer the 10 questions using our **ClassMarker** quiz application. Each correct answer is worth one point. The team members’ individual scores will be averaged together to produce the team’s score.

To prepare for the Academic Quiz, there is a **STLX V Finals Individual Study Guide** posted on the StellarXplorers Website under “Competition”

Penalties

Penalties may be applied to teams’ scores for conduct violations during the competition. Any ties will be resolved by the StellarXplorers Staff.

COMPETITION RULES

StellarXplorers operates under the premise that all Team Directors, Mentors and Competitors conduct themselves with the highest ethical standards. To prevent the perception of misconduct that would jeopardize the integrity of the competition and ensure a fair and equitable competition between all teams, rules have been established to govern participant action during the competition. The following rules apply throughout the National Finals competition. Violation of any of the rules may lead to penalties or disqualification.

Competition Period. The competition period begins at the conclusion of the Mission Requirements Briefing and when a team receives its Competition Package and lasts for eight consecutive hours. The following rules govern the competition period.

1. A team shall have only one competition period to complete ALL tasks.
2. Teams are not allowed to open STK on the competition day before they are ready to compete. No “sneak peeks” or tests of the software are allowed. The StellarXplorers staff will preflight the competition computers prior to competition. If a team experiences a computer problem, they should immediately contact the staff for assistance.
3. It is the responsibility of the team to ensure that ALL work is completed at the end of the eight consecutive-hour period.
4. Competitor-induced technical issues affecting a team’s performance will not result in extra time unless the issue is competition-wide.

REGISTERED COMPETITORS. Only Competitors registered with a team shall compete with that team.

1. No fewer than two and no more than six Competitors may compete for a team.
2. Teams have submitted their final roster of Competitors.

NO OUTSIDE ASSISTANCE. Competitors are responsible for their team’s performance during the competition and may not receive or request assistance outside of their team’s competitors. Once the competition begins, Team Directors and other non-team members shall not coach, assist, collaborate, or advise Competitors until the completion of the competition period. Outside assistance includes direct and indirect advice, suggestions, hands-on assistance, and electronic communication such as e-mail and other social media. Team Directors may only assist teams with:

1. Administrative issues before STK is opened.
2. Timekeeping.
3. Network outages and other connectivity issues that occur during the competition.
4. Issues with the host system.
5. Dangerous or threatening situations that require adult intervention.
6. Maintaining team’s mission scoring data at the end of the competition period.

Control of the Competition Area. The competition area is located in the Space Foundation Discovery Center. Teams may share the competition space with one or two other teams. There are no visual barriers separating the teams. Although there is no

need to whisper, team discussions should be at a level so that they do not disturb other teams. During the competition, team members of different teams shall not communicate with members of the other teams.

Offensive Activity and Tampering Prohibited. Participants shall not conduct offensive activity or tampering against other teams, Competitors, the competition system, or non-participants to gain a competitive advantage. Offensive activity includes the following:

1. Interference with another team's ability to compete.
2. Changing or tampering with system, or host timekeeping devices.
3. Tampering with or modifying documents belonging to other participants or the StellarXplorers Staff.
4. Any other activity aimed at manipulating or deceiving other Competitors or the StellarXplorers Staff.

Printed Material. Printed or handwritten reference materials (books, magazines, checklists, etc.) are permitted in competition spaces. Competitors shall choose and collect their team's printed material for the competition round without the assistance of Team Directors, other teams' Competitors, or non-Competitors. Competitors are not required to reprint existing material.

Electronic Media and Communication Devices. Teams will compete without outside assistance through electronic media or communication devices. Communication Devices include cell phones, smart phones, smart watches, and other wireless devices that are allowed in the competition space, but shall not be used to communicate in the competition space. Answering and making calls, texting, etc. for personal reasons only shall be done outside of the competition space.

Note: Teams will be allowed to bring one memory stick to the competition. The stick may contain the team's logo, the team's photograph and any other information that the team would like to include in the Mission Debriefing. However, it may not include any material beyond that which was prepared for the debriefing and cannot have any prepared material for use during the scenario phase of the competition.

Provided Materials. The StellarXplorers Staff will provide the following materials to each team: Note Pads; Pencils; Ruler; Graph Paper and Calculators. Teams may not use their own calculators or calculators in smart phones. Each competition area will include two computers loaded with STK including an Educational License and Microsoft Office (Word, Excel & PowerPoint); and a White Board with Markers. The computers will have internet access, but only for information available to all competitors.

Oversight Visits to Competition Space. The StellarXplorers Staff (including Photographers), AFA, and Air Force officials may visit their competition space to observe the conduct of the competition and fulfill their oversight role. An oversight visit does not relieve the Team Director of their authority and responsibilities for the team.

Entry into the STK System. During the competition, the StellarXplorers Staff may request to view teams' system for oversight, competition administration, and troubleshooting purposes. The StellarXplorers Staff will not change teams' system. Teams shall allow the competition staff immediate access to their system when requested.

Inquiries. In cases of apparent violations of the rules or scoring irregularities, the StellarXplorers Staff may appoint a staff member to conduct an inquiry.

Penalties. A team or participant that does not cooperate in an inquiry may incur a penalty to include the disqualification, suspension, or ban of an individual or team as determined by the StellarXplorers Staff. Any and all of the penalties below may be applied for any violations of the rules in this document.

Minor Penalties. In the event of a minor rules violation, the StellarXplorers Staff may impose competition penalties on a team including:

1. Score reduction.
2. Invalidation of a team's competition score.

Disqualification. If the StellarXplorers Staff rules that a participant or team committed a major rules violation, they may be disqualified. Disqualified participants and teams are ineligible for awards and recognition and are subject to:

1. Suspension. The terms and time limit of a participant or team suspension from the competition are at the discretion of the StellarXplorers Staff.
2. Termination. A participant or team is immediately terminated from the StellarXplorers Program for the remainder of the competition.
3. Ban. A ban is the permanent disqualification of a participant or team from any future StellarXplorers Program. It is the most severe administrative penalty that can be imposed. Reinstatement is at the sole discretion of the StellarXplorers Staff.

Score Correction Requests. Unless a Team Director can properly document a scoring error, the request will not be considered and the official score will stand.

Feedback. All competitors and Team Directors/Mentors will be asked to provide written feedback on the competition on forms provided by the StellarXplorers Staff that must be completed as specified on the forms.

APPENDIX I

Mission Debriefing Charts



The slide features a dark space background with a glowing galaxy. In the top left is the AFA logo (a star with wings). In the top right is a blue arrow icon with a circular path. The title 'STELLARXPLORERS' is in large blue letters, with 'MISSION DEBRIEFING' in smaller blue letters below it.

- Team #: STLX05-0XXX
- Team Name:
- Team Members (Have each team member tell us something about themselves)
 - Student #1 (List Team Captain(s) First)
 - Student #2
 - Student #3
 - Student #4
 - Student #5
 - Student #6

Include a picture of your team somewhere on this slide



The slide features the same dark space background with a glowing galaxy. In the top left is the AFA logo. In the top right is a blue arrow icon with a circular path. The title 'ORGANIZATION AND SOLUTION METHOD' is in large blue letters.

- Explain how your team was organized and how duties divided up among the team
- Explain the process your team used to solve the scenario



ORGANIZATION AND SOLUTION METHOD



- Explain the process your team used to determine your final solution for the scenario
- The Review Panel members will have a copy of your solution so you do not need to brief these items
- Explain HOW you determined this was your best solution



SUMMARY



- Tell us anything else you would like for us to know about you and your team and how you arrived at your final solution.

Teams are free to add other items to their briefing to include tables or graphics but cannot add additional charts.

APPENDIX II

STELLARXPLORERS V SCORING RUBRIC

Team #: STLX05-0XXX Team Name: XXXXXXXXXXXXXXXXXXXX

	Level 3 Excellent	Level 2 Adequate	Level 1 Unacceptable
PowerPoint Presentation Slides (3 points)	3 pts Slides follow template with all information properly shown	1-2 pts A few errors or incorrect slide information	0 pts Added or altered provided slides
Team Solution Method (12 points)	10-12 pts Clearly and logically explains team organization and solution method	3-9 pts Unclear explanation of team organization and solution method.	0-2 pts Unable to discern the team organization and solution method
Overall Team Effectiveness (5 points)	5 pts All team members contribute. Team enthusiasm captures audience attention and excellently conveys information	2-4 pts Most, but not all, team members contribute. Team conveys information but with little enthusiasm and/or does not capture audience's attention	0-1 pts Only one team member contributes. Team shows no enthusiasm and/or no interaction with audience

Scorer: _____

Finals Debriefing Score: _____