

# Request for Proposal

## University of Toronto Space Design Contest

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# Outline

1 Introduction

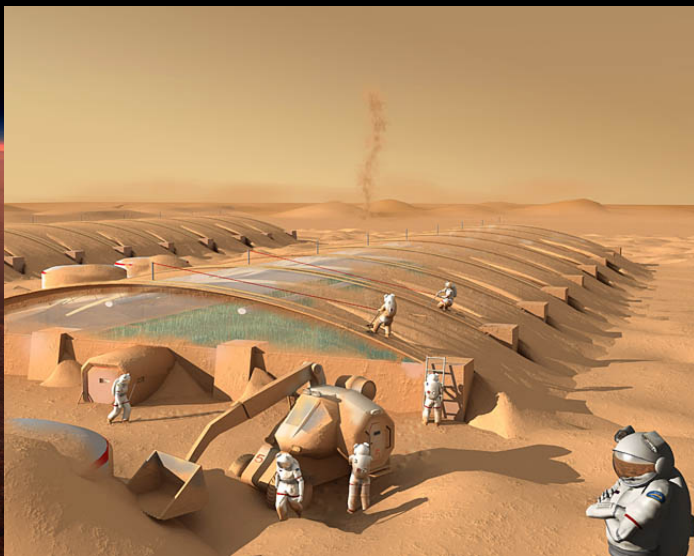
2 Request for Proposal

3 Evaluation

4 Conclusion



# Mission Summary



# Mission Summary



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# Mission Objectives

The objectives of the Advanced Life Support Systems:

- Design a system to provide food for 100 people living on Mars
- Demonstrate this system is technically feasible
- Demonstrate this system is sustainable
- Demonstrate this system meets the nutritional requirements for humans
- Ensure that this system does not damage the existing Martian environment



# Overview

The Request for Proposal is created specifically to:

- relate science to technology, society, and the environment
- develop the skills, strategies, and habits of mind required for scientific inquiry
- understand the basic concepts of science

RFP includes the following five sub-sections:

RFP: = {  
Nutrient Growth System  
Infrastructure on Mars  
Transportation Mode  
Mission Timeline  
Mission Budget



# Nutrient Growth System

In this subsection, you will describe the main component of your design: a system to sustainably grow food on Mars. You will have to outline some of the following things:

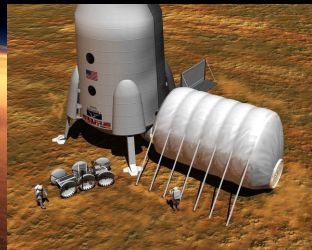
- List of organisms being grown
- Environment required for organism growth
- System required to maintain growth environment
- Demonstrate how list of foods meet nutritional requirements
- Demonstrate sustainability



# Infrastructure on Mars

To be able to grow food on an alien planet, you will require some infrastructure. Consider how your design will address the following:

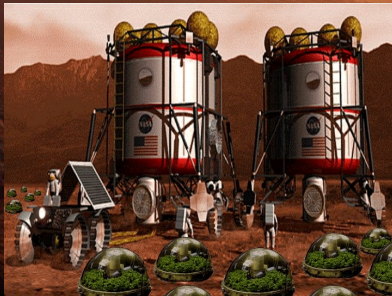
- How much energy do you need and how will it be generated?
- If your system requires irrigation, how will you do this?
- How will your food be harvested?



# Transportation Mode

In this sub-section, each team is required to explain the method of transportation. Specifically, contestants are expected to utilize knowledge from Grade 9, 10 Science and/or Grade 11, 12 physics classes to defend their proposal. Additionally, the following questions should be answered in the final report.

- What kind of transportation method will you use?
- What's your optimal transport route?
- Is your method energy efficient and cost effective?
- How many trips do you need?



# Mission Timeline

A well proposed timeline is a foundation of the mission, as a result the following items should be included in the final report:

- The overall length of the mission
- When will you reach the full productivity?
- Harvest time



# Mission Budget

- Contestants are expected to use knowledge from high school accounting, finance classes to carry out a reasonable budgetary calculation
- Your estimate should be presented in a budget breakdown to show where each cost is allocated and how you arrive at your final cost estimate



# Overview

- The evaluation consists of three deliverables: Final report, Design presentation and Design display
- The mark breakdown is shown as:

Evaluation: =	{	Final report	60%
		Design presentation	20%
		Design display	20%



# Final report

The final report should provide necessary content to support the mission design. It should also explain thoroughly the rationale behind the design. Additionally, the following requirements are imposed on a final report:

- The report shall not be longer than 20 pages (excluding title page, table of contents, diagrams, bibliography and appendices)
- The team must provide both soft and hard copy of the report
- The final report must be postmarked/received no later than Monday, March 28, 2011
- The final report must be in .pdf format



# Design presentation

The design fair presentation provides each team an opportunity to sell the design to a panel of judges. The presentation should include the major design features of the mission. The judges will mark the teams based on:

- content
- creativity
- structure
- group dynamics
- time management
- delivery...

A detailed marking rubric will be released after the final registration date.



# Design display

- Each team will have a chance to present their work to the general public at the Design Fair
- The display should be visually appealing and should contain critical information related to the team's design
- Teams are encouraged to use models, diagrams and graphs to convey their information



# Academic Honesty and Penalties

- Any team that is caught plagiarizing material will be **disqualified** from the Contest

Plagiarism is the *use or close imitation of the language and thoughts of another author and the representation of them as one's own original work*. This includes, but is not limited to, any language in the Final report, text, diagrams or ideas not of the authors.

- Penalties will be assigned to reports which do not follow the outlined RFP guideline
- A maximum penalty of 2.5% will be assigned per violation



Thank you!

