Mars Desert Research Station

2022-2023 Crew Logistics Handbook

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The author gratefully acknowledges the hard work and dedication of the Mission Support volunteers who have contributed to this Handbook.

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IMPORTANT COVID 19 INFORMATION
Response to the Coronavirus Pandemic

The 2022-2023 field season will operate amidst the ongoing global coronavirus pandemic. It is uncertain what the state of the pandemic will be when you are traveling to MDRS and this document was written with the understanding that the status of the virus can change at any time and we will make changes to our operational plans as they are recommended by the United States' Center for Disease Control (CDC).

This field season crewmembers must be fully vaccinated and up to date for COVID prior to arrival to MDRS. This means it must be at minimum of two weeks since they received all of the required doses of the particular vaccine they have been given and that boosters have been received every 8 months thereafter. Proof of this must be sent to The Mars Society prior to your arrival on campus. There will be a new online system for submission of these documents this year.

We suggest that all crewmembers self-isolate for two weeks prior to coming to MDRS for the protection of their fellow crewmembers. In the event that this is not possible, at the very least practice social distancing and wear a mask when in public areas for the two weeks before your arrival, unless it is no longer a recommendation of your local health and government officials.

We also suggest that crews purchase either individual or group travel insurance. Be very careful. Make sure you have a "cancel for any reason" policy that will protect you specifically for COVID 19 travel interruptions. (You may also want to look into a "high risk" policy, in case things like riding ATV's and extreme hiking are not covered in your policy.)

It is recommended that crews determine their own travel protocols from their homes to Grand Junction, CO, USA using guidelines from their home countries and the airlines they fly. Please protect your health as you travel, so that you will not be sick or expose your crewmates. You have the option of coming directly to MDRS from your travels, or you can quarantine yourselves in Grand Junction or Hanksville prior to your mission. MDRS will not cover any travel costs prior to your drive from Grand Junction to Hanksville on the day of your scheduled arrival.

We are doing all that we can to ensure the health of crewmembers once they arrive at MDRS. But we do understand that some people might live in areas where access to the vaccine is limited. Notify us immediately if you know you will not meet these requirements by your arrival and we will make a decision on a case by case basis if the risk is acceptable.

IMPORTANT: All people coming to MDRS, even those who are fully vaccinated, must send evidence of vaccination and a negative PCR (NAATs) COVID test taken no earlier than 72 hours before your arrival at MDRS. This must be done in a medical facility (no home tests) and can be done before leaving your home or upon your arrival in Grand Junction. Otherwise you will not be allowed on campus and if you travel with your crew, they will not be allowed to stay either. Proof of your test must be sent to and acknowledged by MDRS staff before you will be cleared to enter MDRS.

NOTE: We require a long PCR test. There takes between 36-72 hours to complete once you have been tests. This season we will not take rapid tests of any kind, so please do not show up in Colorado and expect to get your test before driving to MDRS.

It is recommended that crews not have any contact with people as soon as they arrive in Grand Junction and that they bring or ship everything they will need for their mission, rather than plan on doing last minute shopping in town. In addition, we are seriously discouraging any tourist like travel in the United States before your arrival at MDRS. Most importantly: Wear your masks. Wash your hands. Practice social distancing. Don't share your air. These things have been proven to reduce exposure to the virus. Please plan to travel with enough PPE for your travels to and from Utah. Disinfectants for your stay at MDRS will be available on campus.

Crews will be traveling to MDRS on Sunday or early Monday this season. Once crewmembers have been tested for COVID, it is mandatory that they avoid additional contact with people other than fellow crewmembers and that they proceed directly to MDRS. Crewmembers should practice social distancing and wear a mask when they are around other crewmembers, until they have tested negative, in Grand Junction.

Should any crewmember test positive for COVID, the remaining negative crewmembers can proceed to MDRS as planned, as long as they number 4 or more and are fully vaccinated. Training for these crews will be modified to protect staff.

The outgoing crews will be leaving MDRS by early afternoon on Saturday. They will be required to clean the station as they have in the past, and do some preliminary disinfecting. After they depart, MDRS personnel will follow up with more detailed disinfecting. Current CDC guidelines recommend generous surface cleaning with recommended disinfecting agents as the best defense against contamination, followed by a minimum of 24 hours with no one in the area. The campus will also be locked down and no one but crew and staff will enter any of the buildings before, during or after a rotation until it is determined by the CDC that COVID is no longer a danger. The goal is that the interiors of the buildings remain virus free so it is not something that the crew needs to worry about during their rotation. Continued frequent and thorough surface cleaning is recommended throughout all missions and crews may decide to wear masks while in sim, although they cannot wear them

with the spacesuits. Spacesuits will be assigned to a single crewmember for use throughout the duration of their time at MDRS. A crew's food rations will be delivered to the Hab prior to the crew's arrival so that they will not need to expose themselves to people in town. Be aware that most people in Hanksville are not vaccinated and do not wear masks.

Despite these measures, there is the possibility that a crewmember can become sick. For this reason, crews will need to check their temperatures on a daily basis. This is the responsibility of the HSO and should be reported daily to Mission Support. The report should also include any noted symptoms. This information may be coded by the crew and nothing will be published. If a person becomes symptomatic or continues to have a higher than normal temperature for several days, the crew should consult with Mission Support and may take that person to the Wayne County Health Center in Loa after reporting the situation. Should the symptomatic crewmember test positive, the simulation will be immediately cancelled and all crew should be retested and monitored until they can safely travel and/or their rotation ends. Crewmembers will be financially responsible for their own care and logistics, and must leave MDRS 72 hours before the next crew's arrival.

There will be onsite personnel at MDRS, and most training/communication will be conducted in person outside using masks and social distancing, and personal contact will be minimized for the safety of everyone. Once sim begins, MDRS personnel will not enter any building on campus except for an emergency, with the exception of the ScienceDome, which will be shared space. Anyone who works in the lab will be required to wipe down all surfaces at the end of each visit to the space for the protection of all. This procedure, and the procedures for maintaining health during the mission and disinfecting prior to departure and after arrival, will be shared with crews in training.

If any member of a crew requires a PCR COVID test prior to departing from Grand Junction, they must notify MDRS personnel of this prior to the beginning of their rotation. The nearest place to have this done is Grand Junction, and the crew will be required to drive there on their own to get the test (they may use the CrewCar to travel, and must fill the car with gas before returning to MDRS, as long as they have discussed this will management prior to their arrival).

Rest assured that we are committed to keeping all crews safe when they are at MDRS. Last season, when things were far worse for the virus than they are now, we still managed not to have a single COVID infection on campus. We want to repeat that success this season. If you have any questions, please let us know. Thank you for your understanding and cooperation. These protocols will remain in effect until the pandemic is officially declared to be over.

Mars Desert Research Station Mission Management Team

Dr. Shannon Rupert, Director

Judd Reed, Assistant Director

TBA, Assistant Director

Peter Detterline, Director of Observatories/Astronomy Team Coordinator

Scott Davis and NorCal Chapter, Spacesuits

TBD, GreenHab Manager

Bernard Dubb, IT Manager

Dr. Robert Zubrin, President of the Mars Society

Carie Fay, Director of Administration

Michael Stoltz, Liaison, Media & Public Relations

James Burk, Webmaster

Dr. Jonathan Clarke, Science Advisor

Susan Holden, MBA, JD, Steering Committee Member

Kay Radzik AIA, Advisor at Large

Part One: INFORMATION FOR CREW APPLICANTS

2022-2023 Mars Desert Research Station Application Instructions and Information

Please read through this document carefully and follow all instructions. Failure to follow instructions may result in your request to apply not being considered.

Greetings! Thank you for your interest in participating as a crewmember at the Mars Society's Mars Desert Research Station. We welcome applications from individuals who would like to be placed with a crew of compatible analog astronauts and from self-organized teams who would like to come to MDRS together. If you apply as a team, please read the following guidelines for self-organized crews and meet them as much as possible.

Please read through this application carefully as some procedures have changed since last year.

1) All individuals, as well as leaders/commanders/external organizers of self-organized teams, must first contact Director Shannon Rupert at srupert@marssociety.org before submitting crew applications. Crew selection has already begun as of March 2021. It is in your best interest to contact us as soon as possible. If you are invited to apply for a rotation, the application will be sent to you.

2) External directors may apply on behalf of a team. External directors may be supporting an educational team made up of students from a single department and/or course, organizing a team from a particular country, region or organization, or developing a research project requiring a single crew to complete. Be aware that any crew accepted into the MDRS program as part of any group with an external director will still be required to comply with all of the MDRS programs regulations and protocols. MDRS does not "rent" the campus to other groups.

3) Please use the following information as a guide for which positions you qualify for as a crewmember at MDRS. Only apply for those roles for which you qualify. Please note that you are only applying for these roles, and they may be changed at the discretion of the MDRS management team.

Commander: The Commander gets the glory, but they are also responsible for the overall safety, organization and management of the mission. This means that they need to be in charge from the inception of the mission, by working on the planning and development of the crew's goals and how to accomplish them.

They are responsible for the crew's logistics before, during and after the mission, although sometimes they turn some of those responsibilities over to the XO. The commander is the person held accountable for all things related to the mission, and is in command of all things while at MDRS, although they still need to respect the overall authority of MDRS staff and the HSO in health and safety matters. Commanders preferably will have prior successful MDRS experience, but can also have gained their leadership skills in their own field and/or via school and field experience. Commanders must have demonstrated leadership and experience in remote or challenging field areas.

Executive Officer (XO): The XO's role shifts slightly depending on the style of leadership used by the Commander. Often XO's are in charge of the logistics prior to a mission and the day-to-day schedule while at MDRS. Not all crews require an XO and an XO should never be selected simply because a person has no other role they can fill. The XO needs to be able to deal fairly and justly with all crewmembers and support the Commander's decisions in overall mission planning. An XO should have prior logistic skills and experience in small group leadership.

Health and Safety Officer (HSO): The role of the HSO is dependent on the applicant's skill level. They must have, at minimum, current first aid and CPR training and they must provide proof of this prior to their crew's arrival at MDRS. First responder training is preferred and EMT's, nurses and doctors are highly desired. This position is also responsible for the operational safety of the crew and the campus.

Crew Engineer: The role of the Crew Engineer is the most misunderstood of all the positions at MDRS. The Crew Engineer is responsible for the maintenance and monitoring of the station, its buildings and systems. The person in this position has to think proactively and be able to think like a Martian in terms of active response to the physical environment at MDRS. In order for daily activities to proceed as scheduled, the crew engineer needs to routinely monitor the equipment being used by the crew and make sure it is ready for whatever is planned. In addition, when systems fail, the crew engineer needs to diagnosis the problem and contact Mission Support with a plan for solving the problem. While the Crew Engineer generally has an engineering background, experience proactively maintaining functionally of a large facility and/or project is more important that actual engineering skills.

GreenHab Officer: This person is responsible for keeping the crops alive and thriving in the GreenHab, as well as the overall maintenance and monitoring of the GreenHab's environmental controls. GreenHab Officers can have experience in biology and/or gardening. Experience growing plants in a greenhouse and greenhouse management is highly desired. At a minimum, the GreenHab Officer must be committed to maintaining the crew crops with dedication to their survival and documentation of harvest.

Crew Scientist, Crew Geologist, Crew Biologist: The role of a scientist on the crew is to conduct research and maintain the ScienceDome and its equipment. They generally plan the crew's EVAs based on their research goals. They must have pre-approval from their home institution for any studies done at MDRS. This is particularly important if the scientist is studying human factors. All human factors research is required to be approved by the home institution's IRB, even if it doesn't require an IRB. In that case, simple proof that it was reviewed and an IRB was not deemed necessary is all that is needed for the research.

Crew Astronomer: The crew astronomer must have both experience using a telescope and a research project that has been approved by the MDRS Astronomy Team. They will work with the Director of Observatories prior to their arrival at MDRS to complete the requirements of this position.

Crew Journalist: The Crew Journalist is responsible for the daily reports and photos sent from MDRS. This included a daily Journalist Report that is a record of your crew's daily life, but they should also be the organizer for the crew's media efforts.

Crew Artist/Artist in Residence: We welcome student and professional artists in all disciplines, including but not limited to fine art, graphic art, photography, film, journalism, and writing. In order to qualify as Artist-In-Residence, you must demonstrate that you make your living in that field and the final decision on whether that person qualifies as Artist-in-Residence belongs to MDRS.

There is of course flexibility in each of these roles and you are also invited to propose another role for yourself based on crew need and/or experience and education.

3) Please use the following information as guidelines for developing a self-organized crew. Self-organized crews must meet these guidelines in order to be selected for a rotation. If you have any questions or concerns, contact us.

Please note that self-organized crews can consist of between 6-7 people. Six is a fully functioning crew. Please indicate the number of people in your team on your application. **Guidelines for self-organized crews will be strictly enforced. If you do not meet these guidelines you must address why you don't and how you will solve the loss of that component of your crew**.

Guidelines for self-organized crews:

- All must be healthy people, used to outdoor activity such as hiking and camping. They should all be people capable of eating all normal types of food.

- At least three of the crew must speak English well. At least one must be fluent.
- All teams from a single university must have a faculty advisor who will assist the team with their research proposals and also be available to the crew and Mission Support during their stay at MDRS. This person must write a letter of commitment to the rotation that must be submitted with the team's application.
- At least two of the crew should be natural scientists or natural science students. This is because the activity of the crew will be field exploration. If a crew does not have anyone who can fill the role of field scientist, along with their application they should submit a plan outlining the plan and purpose of their field activities.
- At least two members of the crew should be people who are very good at fixing mechanical or electrical equipment. This is because in the desert things frequently break down and a crew needs to have some ability to deal with such events.
- At least one of the crew should be a person capable of expressing himself or herself well in writing and be willing and able to send an account of each day's activity for publication on the Internet.
- One of them must have the maturity and judgment and experience to serve as crew commander. In order to be commander of a self-organized crew, the applicant must meet one of the following criteria:
    - Must have served satisfactorily as crew commander in a prior field season
    - Must have served satisfactorily as a crew member in a prior field season and show previous leadership experience in their field
    - Must have served satisfactorily in a leadership role in a field expedition and/or a remote location
- All crew commanders will be screened and approved by the selection committee prior to assignment.
- One person should have some medical experience, either first aid/CPR or wilderness first responder. Another person will need to have experience or a strong interest in managing crops in the GreenHab.
- One person should be reasonably knowledgeable with computer and network operations, specifically wired and wireless connectivity, router configuration and basic network commands.
- All should be people enthusiastic about space exploration in general, and Mars exploration in particular.
- All of them must be serious, responsible people. No people should be sent who like to do dangerous things for fun, or who are not careful with other people's property, or who are otherwise excessively immature.
- All crewmembers will need to spend two weeks at the station, arriving and leaving together. At least two of them should be able to drive a car legally in the United States.
- You need to choose a crew of people who can get along and work together well. There must be a minimum of six people on your main crew.

You are STRONGLY encouraged to have 2-3 alternate crewmembers. They will need to fill out an application as well. We will no longer approve an alternative crewmember after the selection process. If you find you need a replacement crewmember, it will be at the discretion of the Crew Selection Committee on who is assigned to your crew.

- The crew must all understand that they need to follow orders given to them by Mars Society's Mission Support. We do not direct all the crew's activity. Much of their research program, for example, will be self-generated. But when we tell them they need to do something, or that they must not do something, they need to follow instructions. Crews that do not follow directives from Mission Support, and in particular the Director, will be removed from the station at their own expense.

MDRS Crewmember Fees
Field Season 2022-2023

Every participant is expected to pay their deposit of $250 per person or a minimum of $1500 per crew no later than six sixty days after being awarded a crew spot. Crew fees must be paid in full sixty days after that date. If these fees are not paid, your rotation may be assigned to another crew.

Standard crew fees are below.

Professional fees are $1750 a week or $3500 for a standard two-week rotation.

Students who qualify will pay fees of $1000 per week or $2000 for a standard two-week rotation.

Experienced analog astronauts who qualify can receive a $500 reduction in crew fees for each level completed. See information on our website about our ratings program.

Crews with less than 6 participating crewmembers at the time of their rotation will still be required to pay a fee of $250 for each missing crewmember. In addition, crew members who do not show up for their rotation will forfeit their $250 deposit.

Included in the participation fee paid to The Mars Society is:

- Transportation by car to and from Grand Junction, Colorado
- All food and beverages provided during your time at MDRS
- Water, heating, electrical power, and internet at MDRS (except batteries)
- Use of science and engineering and general equipment, etc., rovers, and MDRS vehicles per established protocols
- Use of EVA spacesuits

Not included in the participation fee:

- Fuel for the trip from Grand Junction to MDRS and the return trip to Grand Junction. (160 miles one-way)
- Costs of two hotel nights for the overnight stay on Friday night before your rotation and Sunday night after your rotation.
- Cost of any hotel stay in Hanksville except as approved by the Director in an emergency
- Any medical expenses incurred as a result of your participation
- Travel expenses from your home to Grand Junction and back.
- Transportation expenses for crewmembers whose travel plans are different than the majority of the crew from Grand Junction.
- Meals not consumed at MDRS.

In order to qualify as students, applicants must be full-time students in a degree-seeking program at an accredited institution of higher learning. Students must send proof of their educational status to the Mars Society one month prior to your rotation or when requested. Failure to be pro-active about this may result in you being assessed a professional rate. For a crew that all attend the same university, a single letter from the registrar or the department chair will suffice as proof. Other documents we will accept are a current unofficial transcript and a letter from the registrar or a university for a single individual. These documents must be in English.

The $250 deposit will be due from each participant within sixty days of notification of crew selection ($1500 for a six-person crew). This deposit will be refundable after your rotation provided your crews does not damage, destroy or willfully mismanage MDRS facilities and resources. This also includes the understanding that if they do not leave the station clean and organized for the next crew, each crewmember will be charged a cleaning fee. This deposit will not be refunded should the crewmember not attend their crew's rotation. The only exception to this is if the mission dates are affected by the pandemic and/or at the discretion of The Mars Society.

Part Two: PRE-MISSION INFORMATION FOR CREWS

Pre-arrival actions checklist:

DATE DUE (mm/dd/yy)	DATE DESCRIPTION	ACTION	COMPLETED (Yes/No)
	30 days after the Official Acceptance Letter	Crew Deposits	
	8 months prior to mission	All Crewmembers' Names Confirmed	
	5 months prior to mission	Crew Fees	
	30 days prior to mission	Student Status	
	30 days prior to mission	COVID-19 Vaccination Record Card	
	30 days prior to mission	IRB	
	30 days prior to mission	Research Approval Zoom Meeting	
	2 weeks prior to mission	Kármán Line Zoom Meeting	
	2 weeks prior to mission	Media	
	2 weeks prior to mission	Astronomy Training Approval	
	72 hours prior to mission	Covid Negative Test	

Link to payment portal for deposits and crew fees:

https://app.moonclerk.com/pay/jmcxagxhouq

Carie Fay, our administrative director, is in charge of payments. Please contact her directly, and copy Shannon, on any questions and concerns you may have. Her email is cfay@marssociety.org

Letters of introduction or support for travel and sponsorship:

Again, Carie is the person who creates these letters. Please contact her and copy Shannon.

Shipping material for your mission:

Ship materials to MDRS as far in advance of your mission as necessary to assure their arrival before your mission. Shipments of heavy items may encounter long delays in delivery and things sent express may not arrive in time for your deadline.

Currently there are two ways to ship materials to MDRS:

Via the USPS:

MDRS Crew XXX
C/O Shannon Rupert
P.O. Box 82
Hanksville, Utah 84734
U.S.A.

Via FedEx, UPS and any other non-governmental carriers:

MDRS Crew XXX
C/O Rockin Riddle Rock Shop
209 West 100 North
Hanksville, Utah 84734
U.S.A.

Be sure to let us know what you are sending and when you expect it so we can pick it up. Remember, it is not our responsibility to care for your deliveries, but we will do our best to facilitate getting them to you.

Conducting research at MDRS:

Crews are responsible for their own research while at MDRS. While every research project needs to be declared to the Mars Society, we no longer review and approve research. We will, however, shut down any research that is deemed unprofessional or dangerous. All human factors research needs an IRB or clearance from your institution that it does not require an IRB. That documentation needs to be presented to the Mars Society prior to your arrival at MDRS. Any illegal or unethical research will not be permitted at MDRS and anyone found conducting such research will be banned from returning to MDRS or any Mars Society facility. Attendance of the research ZOOM meeting one month prior to your mission is mandatory.

Crew Travel Logistics:

MDRS Travel Information

MDRS is located in Hanksville, UT, a small town in the southern Utah desert. All MDRS crews are required to travel to the station via Grand Junction, CO, the nearest town with good commercial air service. Having a common meeting point facilitates the sharing of the CrewCar for transportation between crews. Any crewmember wanting to arrive at the station by other transportation methods must first clear it with the director. During this pandemic, no crewmembers will be allowed to arrive separately at MDRS without all logistics approved by the MDRS Director. Anyone not following this protocol will not be allow to stay at MDRS.

Once assigned to a crew, contact your crewmates and begin to make your travel plans. Grand Junction Regional Airport (GJT) at Walker Field in Grand Junction, is served by five airlines connecting through hubs in Denver, Salt Lake City, Phoenix, Los Angeles, Dallas and Houston. You must plan to arrive in Grand Junction on or before the Saturday preceding your mission. We no longer have any agreement with the Day's Inn, but it is a decent hotel and where the CrewCar is parked for pickup, so staying there makes sense. You are not, however, required to stay at this hotel and can make arrangements to stay anywhere you like, but this has traditionally been the place crews have stayed.

The CrewCar aka Crew Transport Vehicle is a silver/gold Chevrolet Suburban that is normally parked at the Day's Inn between crew changeovers. This season, due to COVID-19, the CrewCar will be kept at MDRS most of the time. The outgoing crew will drive it to Grand Junction on Saturday, disinfect the CrewCar and turn it over to the incoming crew by 3 pm. The incoming crew may use the CrewCar that evening. Check the section in the Handbook on care and operating of the CrewCar before you get the keys. Those instructions and restrictions about the use of the car are important.

Incoming crews will plan to leave Grand Junction on Sunday to arrive at MDRS at noon. The trip will take you about 2.5 hours without stops if the weather is good. Make sure you have notified Shannon if your arrival time changes before leaving

Grand Junction. You do not need to stop in Hanksville for your food this season as it will be delivered to MDRS after the outgoing crew leaves.

If no one in your crew has ever been to MDRS, someone from MDRS will meet you in Hanksville and lead you out to the station. If you have been to MDRS, please proceed to the station. Do not plan on having a final meal in Hanksville before going into sim while we are in a pandemic. Once you have arrived at MDRS, you will have to remain there until your rotation is complete (the only exception to this is if you need to go somewhere to be tested for COVID 19).

There will be no handover this season – Your crew will not learn about the station's systems, equipment, and protocols from the outgoing crew. All training will be done remotely via this Handbook and two mandatory ZOOM meetings, as well as in person both before and after you arrive at MDRS.

Two weeks later, or at the end of your rotation, the campus will be inspected on Saturday after you depart for Grand Junction. You will need to return the CrewCar to the Day's Inn and your rotation will officially be over.

Changeover Schedule:

The changeover schedule is mandatory and crews must plan their arrival and departure accordingly.

Saturday morning: Outgoing crew completes cleaning and disinfecting of all building on campus by 10 am. They return to GJ in the CrewCar and deliver it to the incoming crew at the Day's Inn at 3 pm. Arriving crew prepares for trip to MDRS on Sunday.

Sunday morning: Incoming crew arrives at MDRS at NOON and will spend the day completing their training. Timing for going into sim is dependent on completion of training.

Note on restrictions of use of Crew Car:

The CrewCar will only be used to drive back and forth to MDRS this season. There should be no shopping done in Grand Junction, and only essential travel around town. There will be no side trips to tourist locations to and from MDRS. The CrewCar is only for official MRDS use.

Once a crew has the keys they must:

1. Record mileage
2. Check gas (tank should be full)
3. Note any damage to the vehicle.

4. Do a safety check and check the oil before leaving Grand Junction.
5. When they arrive in Hanksville, they should fill the tank at Hollow Mountain. This is their financial responsibility.
6. Report the above information in that evening's Operations Report.

When a crew leaves MDRS to return to Grand Junction:

1. Record mileage
2. Check gas (tank should be full)
3. Note any damage to the vehicle.
4. Do a safety check.
5. Before turning the car over to the new crew, fill the tank with gas. This fuel is their financial responsibility.
6. Record mileage.
7. Report all of the above to Mission Support so the new crew can add it to their Operations Report.

NOTE: The following will be strictly enforced this field:

Failure to do any of the above will result in a $300.00 fine per crew. Any willful or negligent damage to the vehicle resulting in needed repairs will be the responsibility of the crew who was operating the vehicle at the time of the damage. Both crew-use vehicles have undergone extensive repairs to their undercarriage and we would like to keep them in safe condition.

Paperwork required prior to arrival

Please send signed copies of the signature pages of both the Code of Conduct and the completed Indemnity form to The Mars Society. There will be a new system in place this season and directions for submission of these forms will be sent soon. In addition, you must send your proof of student status and vaccination **one month** prior to your mission. After submission, please make sure you have a confirmation of receipts before traveling. We will not remind you of these requirements and you will not be allowed on campus if we have not received them. Please refer to your Action Item Timeline for due dates. REMINDER: In addition, follow all COVID requirements noted earlier in this Handbook.

Food and Cooking

List of kitchen appliances available at the Hab: full size four burner propane stove and oven, electric kettle, bread maker, slow cooker, microwave, small refrigerator, coffee maker. Dishes to serve a crew, and pots and pans for large crews are also

available. Crews may bring disposable dishes to use instead of washing dishes if they prefer.

Food is kept in mouse proof cabinets and no food should be left out where rodents may help themselves.

Food at MDRS is all shelf-stable and was selected based on research that suggests that this is what will be consumed by crews on a Mars Mission.

It's hard to eat food at MDRS if you can't cook. Shelf stable food products are not easy to use and nothing is pre-made. So talk amongst yourselves about this. Some questions:

1. Who can cook? Who likes to cook? Who hates to cook?

2. Should we eat our meals together each day? I highly recommend this but it takes time. At a minimum, eat dinner together.

3. Who has food allergies? Restrictions? If you are on a low salt diet, this is a problem you must address before you get here and will probably require you bring additional food supplies. You need to let your crew know what you cannot eat so they can work around it. For example, if a person has a salt restriction you will not be able to salt community food but each can season to their liking once it is cooked.

4. Who has food dislikes? For example, I hate canned tuna so I won't eat it. But I can just skip the meat for one meal and eat whatever else is available. It won't kill me and it won't put the rest of the crew out by making them cook an entire meal with me in mind. This is not the same as a food allergy or a food restriction and you must not make your issue a crew issue.

5. Who has a food lifestyle? Are you vegetarian or vegan? Do you prefer to eat only certain foods? Do you avoid fats or sugars? Again, this is not the same as a medical food allergy or restriction and it's your issue, NOT the crew's. Often it is our instinctive desire to eat as we always have that causes friction over food. It's two weeks. Be prepared to be flexible in your food desires. If you can't, then bring your own food and cook it yourself. Don't put that responsibility on your crew. They don't have to eat the way you do.

It is best to discuss this before you come because when there is a conflict that comes up here, it generally comes up in anger and is not easily solved. Pre-mission discussions also allow you to plan to bring additional supplies your crew may want to include that aren't on this list.

Remember that there is no alcohol allowed at MDRS. If you have a special occasion, (New Years, Christmas, a religious event) that you feel warrants alcohol, please contact the Director and request a specific type and amount and give the reason. If

you don't, and you are caught with alcohol on the campus, you will be asked to leave immediately. This applies to both an individual and a crew. Recreational drugs in any form, even when legal, are not allowed at MDRS.

An inventory of what foods are provided is in the Appendix of this handbook. Crews may not get everything on the list, and some items may be substituted dependent on crew needs and availability. Crews will be required to inventory their food reserves on the final Friday of their rotation, so that food for the next crew can be packed and delivered before the new crew arrives on Sunday.

Part Three: TRAINING REQUIREMENTS

Beginning with the current field season, training at MDRS will move to a hybrid online/in person format. This accomplishes two things: 1) minimizes risk of infection from COVID-19 and 2) allows for some make-up of the time lost due to social distancing of crews and the lack of any crew to crew interactions.

The main document for this training will be this handbook, with additional two additional mandatory online meetings. Each crewmember is expected to complete and additional required training, based on their crew role, prior to their arrival at MDRS. Commanders are expected to make sure all requirements are met.

Beginning in Fall 2022, we have added some basic training requirements for crewmembers in the roles of Health and Safety Officer (HSO) and GreenHab Officer. Sometimes people in these positions do not have the education and/or experience to commit to these positions in the manner that is necessary for success in those roles, so we have implemented these new requirements to further the safety and success of these missions.

For the HSO position, the person in that role should have a professional medical license such as EMT, paramedic, nurse, or medical doctor. If they do not have this experience, they must take an in-person standard first aid course that is at least 16 hours in length and be CPR certified. Wilderness First Responder and Safety in the Workplace courses are also recommended, but not required at this time. If you have questions about which course qualifies, please contact us and we will help you.

For the GreenHab Officer position, the person in that role should have professional experience in some type of agricultural crop production, greenhouse management and/or have some sort of Master Gardener qualification. If they do not have this experience, they will be required to take an online course offered by us. For this field season only, this course will be free. Volunteer experience at an in-person farm/plant nursery/plant research position can be considered in place of this course, but you will have to take and pass the exam from the course.

In addition, we strongly encourage you to design your research program around only those types of research your crew's experience and education can support. It is fine as a "hobby" project to take on something outside your expertise, but we expect all mission goals and plans to only include that research which your crew is qualified to conduct.

Appendix A. Application materials

MDRS Crew Application for 2022-2023

PLEASE NOTE: In the past we have considered applications that did not follow the instructions completely. For this field season, no application will be accepted if instructions have not been followed. You are applying to participate in a professional program and following instructions is a required part of being an analog astronaut.

PART ONE OF THE APPLICATION:

Please answer the following questions on the first page of your application. Do not include the questions, only your answers. Applications with the questions included will not be considered.

1. Please write your name. Include the following: Surname/Family name, Given name Title (optional). What would you like to be called by your crewmates (if not your given name)?

2. Please write your postal address complete with postal code and country and denote whether the address is: Home, Work, School, or Other (please specify)

3. Do you have US citizenship, permanent resident status, a US visa that will remain enforce through June 2022, or will you acquire a tourist or other visa in order to visit?

4. Please list the email address you want to use for all correspondence from the Mars Society (one only).

5. Please give us your telephone number. Please include the country code if the number rings outside the US or Canada.

6. Please give us your date of birth as day month year, e.g. 16 July 1994

7. Are you applying as: an individual applicant or as part of a self-organized team? Please list the name of your self-organized team's name, if applicable.

8. Are you applying as a student or as a professional? If applying as a student, you will need to show proof of current registration prior to your arrival at MDRS. Please see other qualifications for students in instructions.

9. Please enter the dates of the rotations (listed below) that you are available to serve on a MDRS crew.

NOTE: You should have discussed this with the director of MDRS prior to being invited to apply. Note all possible dates that you discussed.

Please add any optional comments or explanations concerning your available dates.

NOTE: Crew rotation numbers and dates are tentative and will probably change depending on crew assignments.

10. Please list your ILR level of English language proficiency according to the self-assessment at http://www.govtilr.org:

Elementary 1 2 3 4 5 Native/Bilingual

11. Do you have any dietary restrictions or food allergies? If so, please describe. If not, please enter "none". Please be aware that it is your responsibility to address solutions to any food restrictions on your own. MDRS is not responsible for providing crewmembers with special food during their time at MDRS.

12. Do you have a driver's license valid in the US?

13. If you have served on a space analog crew or long-term expedition crew in the past, please list your experience. Specify the facility or location, the duration of your mission, the number of crewmembers serving with you, and your role in the mission.

14. For safety reasons, MDRS crew members must be physically fit enough to perform outdoor work in cold and/or hot conditions wearing heavy mock space suits. They should have sufficient fine motor skill for typical hand writing and typing tasks, and sufficient (corrected) visual and hearing acuity for independent (non-assisted) participation in all aspects of the crew's work and communications. Please choose one of the responses - if you choose the second, and are otherwise qualified to join a crew, just let us know what accommodations to your limitations are required. Please write the following statement that applies to you on your application:

- I attest that I am sufficiently able-bodied to do all of these things.

- I am unsure about my fitness level, sight or hearing, and would like to discuss my situation with one of the MDRS management team. (Also include what about your fitness level, sight or hearing that you may have and how you will manage it at MDRS.)

15. MDRS is located at least 45 minutes from the nearest emergency medical service and about 2.5 hours from the nearest full service hospital. If you have a major health condition that could impact your stay at MDRS (e.g. diabetes, asthma, high blood pressure, cancer, cardiovascular disease, blood clots, mental illness, autoimmune disease, major allergies or substance abuse issues), or have a history of any of these health conditions including heart attack or stroke, you should obtain clearance from your physician before participating at MDRS. Please write the following statement that applies to you on the application:

- I attest that I do not have, and have no history of, any of the above-mentioned health conditions.
- I would like to discuss my situation with one of the MDRS management team. (Also include your health condition and how you will manage it at MDRS.)

16. Crews at MDRS live in close physical proximity to each other. If you carry a communicable disease which can be passed from person to person in a normal living environment (e.g. tuberculosis, Hepatitis C) we expect you to discuss your situation with your doctor and disclose it with us. If you select the second option, and are otherwise qualified to join a crew, we may contact you. Please write the following statement which applies to you on your application.

- I attest that I do not carry any communicable diseases.
- I would like to discuss my situation with MDRS management. (Also include your communicable disease and how you will manage it at MDRS.)

17. Have you or anyone in your household tested positive or been treated for COVID 19? This will not have any bearing on your application but we do need this information for the health and safety of other people.

18. Are you fully vaccinated for COVID 19? Proof will be required prior to your arrival at MDRS as long as it is recommended by the CDC.

PART TWO OF THE APPLICATION

Please address the following in a short summary paragraph:

Read over the skill sets for the crew positions in a typical MDRS crew in the instructions that accompany this application and decide which ones are best suited to your skills, experience and interests. Roles include Commander,

Executive Officer, Health and Safety Officer, Crew Engineer, GreenHab Officer, Crew Geologist, Crew Biologist, Crew Astronomer, Crew Scientist, and Crew Journalist/Artist/Communicator/Media Officer. If you are applying as a professional Artist-in-Residence, please indicate this. Professionals may indicate their preference for a crew role other than those listed above. However, it is the responsibility of the applicant to provide evidence that they are qualified for this role and also that a significant part of their work at MDRS will reflect this role. It is at the discretion of the Crew Selection Committee to grant titles other than those listed.

List the positions for which you are qualified to serve and rank them in order of preference. Please do not apply for a position for which you are not qualified. Fully justify, through your education and experience, why you are applying for the position. If you are applying as a team, please list **only** that role for which you have been assigned in that team, although you still must justify why you were selected for that role. If you are applying as both part of a team and as an individual, please indicate this in your answer to this question. Briefly describe your qualifications/training for each position and your interest in serving in each one. (250-500 words)

PART THREE OF THE APPLICATION

Please let us know about any of the following skills or experience you have that would make you a particularly valuable member of a MDRS crew. On your application, list only those things that you have notably more experience in than a normal MDRS crewmember. Give a short summary of your background and skills in all areas of expertise that you have listed.

Do not list any of these things on your application for which you have no special skills or experience.

Member of The Mars Society or affiliates (e.g. Mars Society Australia, etc.)

Prior MDRS or FMARS crewmember

Prior member of other analog facility expedition (e.g. HiSEAS, NEEMO, D-RATS, etc.)

Member of a team whose home institution/group has a multi-year history of successful participation at MDRS

Analog astronaut (simulation)

Mars Analog research (no simulation)

Medical Training (e.g. First aid, First responder, EMT, nurse, M.D.)

Greenhouse management

Field research (Geology/Geophysics, Biology, Meteorology, etc.)

Lab research (Chemistry, Biology, Physics, Horticulture, etc.)

Living off-grid

Living/working in wilderness/remote setting

Working in extreme environments

Leadership

Group participation showing a long term commitment, for example, clubs that you have participated as an active member over a period of time (does not have to be Mars/Space related)

Home repair and maintenance (e.g plumbing, carpentry, electrical, heating/cooling, propane and water pumps)

Mechanical skills (e.g engine repair and maintenance)

Electronic skills (e.g. soldering, measurement, testing, troubleshooting and repair)

IT skills (e.g.operation, configuration and connectivity of computers, Wi-fi, networked devices, basic network commands)

Communications (e.g. ham radio operator, repeater operations)

Aviation experience, including drones

Cooking

Travelling by ATV and/or 4WD

GPS and map reading

Expedition management

Social media

Multi-lingual

Communication and collaboration with diverse cultural groups not centrally located

Maintenance and cleaning of a research facility

Maintenance and cleaning of a communal living facility

Graduate education

Specialized training related to analog research

Relevant licenses/certificates held

Prior published research on Mars analog research

Any other skills you feel are relevant to being a crewmember at MDRS

PART FOUR OF THE APPLICATION:

To complete your application, please attach the following as the final page(s) of your application:

a) A simple resumé or curriculum vitae including the names and addresses of three references. Please submit as a word doc and do not include a photo. If you are a student or a crew of students, one of your references must be an academic mentor/advisor. If you are part of a team with an external director, he/she must be one of the references for each member of the team.

b) A formal one-page summary of all research (scientific and engineering), outreach, education and media activities you will be proposing for your stay at MDRS. Be sure to include names of collaborators and sponsors, as well as your institutional affiliation for this research. If the research involves human factors, please include your plans for IRB approval. If you will require special permission for land use, and/or special use of MDRS facilities, please include this is your research. You will be asked to update these documents within 30 days of your arrival at MDRS, but it is important that you give us as many details as you can for your applications.

c) Any additional paperwork required by your crew per application instructions.

Please email your completed application as a SINGLE word document (no pdf's or other formatted documents will be accepted) to MDRSapplications@marssociety.org.

You may also attach a team proposal to your application, as long as we also receive a **separate** completed individual application for all applicants.

On to Mars!

Appendix B. Legal documents for crews

THE MARS SOCIETY: MDRS CREWMEMBER WAIVER, RELEASE AND INDEMNITY AGREEMENT

I, _____, the undersigned, being at least eighteen years of age, and in consideration of the right to participate as a crew member at the Mars Desert Research Station (MDRS) during the period_____, do hereby agree to the terms of this Waiver, Release and Indemnity Agreement.

I recognize that being a crew member at MDRS is a hazardous activity carrying significant risk of personal injury. I further recognize that there are natural and manmade obstacles; hazardous surfaces and environmental conditions, and other risks, which in combination with my actions can cause severe or fatal injury. I hereby freely agree to assume all risks which may be associated with or result from my participation as a crew member at the Mars Desert Research Station.

I also specifically hereby acknowledge and confirm my understanding that use of an EVA suit constricts and limits my ability to safely conduct activities that I may undertake while a crew member at MDRS, including but not limited to hiking, riding all-terrain (ATV) vehicles, climbing, sample taking, and other similar EVA activities. Such restricted abilities in the remote and hostile Utah desert environment may be dangerous and can lead to serious injury or death. I specifically agree to assume full responsibility for, and hereby acknowledge the risk of, any bodily injury, death, or property damage that may arise from riding any type of EVA vehicles anywhere while a crew member at MDRS.

I further agree to assume full responsibility for and to hold harmless and indemnify and hereby release The Mars Society, Inc., its agencies, departments, officers, directors, employees, agents, and volunteers, from any and all costs of litigation, liability, claims, demands, actions, and causes of actions whatsoever for any loss, claim, damage, injury, illness, or harm of any kind or nature arising out of or in connection with my participation as a crew member at MDRS.

I hereby acknowledge and grant The Mars Society, Inc., its officers, directors, members, servants, and agents, the right to photograph me and use my image and any other reproduction of my physical likeness (as the same may appear in any still camera photograph and motion picture) in, and in connection with, exhibition, theatrically, on television or otherwise, or any motion picture(s) in which the same may be used or incorporated, and also in the advertising,exploiting, and/or publicizing of any such motion picture(s), but not limited to television or theatrical motion picture(s). I hereby certify and represent that I consider any publication of my image by the Mars Society, Inc. to be valuable consideration for

said release, and hereby waive any and all rights to further compensation of any kind in connection with the utilization of my picture and any other reproduction of my physical likeness with reference to my participation as a crew member at MDRS.

This release shall be binding upon the spouse, heirs, legal representatives, next of kin, executors, and administrators of the undersigned crew member.

By entering into this Agreement, I am not relying on any oral or written representation or statements, other than what is set forth in this Agreement. I specifically waive any defense insofar as this Agreement is concerned that may arise as a result of any state or local law and/or regulation or policy that may impact its enforceability.

CONSENT

In the event of an injury, consent is hereby expressly given for emergency medical aid, anesthesia, and/or surgical procedures, if in the opinion of an attending physician, such treatment is necessary.

I HAVE CAREFULLY READ AND UNDERSTAND THE CONTENTS OF THIS WAIVER, RELEASE, AND INDEMNITY AGREEMENT, AND I SPECIFICALLY INTEND ITS TERMS TO COVER MY PARTICIPATION IN THE ACTIVITIES SPECIFIED ABOVE.

Date: _____

_____
Signature of Crew Member

_____
Print Name

ATTACH SIGNATURE FORM FOR MDRS CODE OF CONDUCT HERE

Mars Desert Research Station
Code of Conduct

All people taking part in Mars Society expeditions (the 'Expeditioner' or 'Expeditioners') are required to accept that their participation is conditional on their continued compliance with this Code of Conduct ('The Code'). This Code is valid in all Mars Society undertakings, whether a stay at one of the Mars Analogue Research Stations or on a Mars Society related expedition elsewhere. The Code is also considered to rule conduct at any Mars Society meeting, conference, or sponsored event.

PURPOSE AND POLICY
The Code establishes standards of personal behavior for those taking part in Mars Society Inc. expeditions, which contribute to morale, teamwork, participation, and, ultimately, a successful expedition.

The main focus of life at the Mars Desert Research Station is the collection of scientific data. This will take priority over all other aspects of the expedition and will determine the daily and weekly schedule. Expedition life is challenging, but by following this Code of Conduct and with the right attitude and work ethic, it may be one of the most rewarding experiences of your life.

STANDARDS AND OBLIGATIONS
Each Expeditioner must comply with the general standard of behavior recognized as reasonable by the wider community. The Expeditioner is also required to meet the additional and specific standards of behavior outlined in the Code. The Code is not intended to be exhaustive on matters of personal behavior. The Code outlines broad standards that serve as a guide to acceptable and unacceptable behavior.

COVERAGE AND ESSENTIAL INFORMATION
The Expeditioner has been provided with a copy of the Code and should understand that their participation in Mars Society Inc. expeditions and events is conditional on their continued compliance with its provisions. It is the responsibility of the Expeditioner to familiarize themselves with the contents of the Code.

THE CODE
1. WORK
1.1 Expeditioners have been selected largely because of their skills, experience, knowledge, and personal qualities. The Expeditioner is expected to be efficient, effective, diligent, responsive, productive, and timely in meeting their

individual responsibilities. The performance of the Expeditioner should clearly show that they meet these expectations with minimal supervision. It is also expected that each Expeditioner will work with Mission Support and the MDRS management team to comply with all procedures, protocols, and practices established both at MDRS and operationally.

1.2 It is expected that the Expeditioner shall:

- work with others in the most effective manner to meet the objectives of the expedition;
- assist with routine base camp chores to be completed each day;
- assist with various infrastructural development and/or maintenance projects at the Hab as may become necessary during the expedition;
- show leadership, consult, coordinate, delegate, negotiate, and counsel as appropriate with other individuals, especially those under their control; and
- comply with and ensure that their team understands and complies with occupational health and safety principles and practices.

1.3 In order to distribute the daily workload fairly, the expedition team will share on a rotational basis the following tasks:

- assist in the preparation of food and ensuring the kitchen and eating area are cleaned after meals;
- ensure that the Hab and other buildings at MDRS are kept clean and that maintenance tasks are completed daily;
- prepare science, survey, and safety equipment for use during the day's fieldwork, and ensure that all equipment is cleaned and stowed for the next day's use as appropriate;
- assist in the loading and unloading of expedition equipment.

These tasks are essential to the safe operation of the expedition and the Hab. All Expeditioners are asked to complete the tasks to the best of their ability.

2. INDIVIDUAL CONTRIBUTION TO EXPEDITION AND TEAM

2.1 The Expeditioner should manage interpersonal relationships in such a way as to promote and maintain group harmony and well-being.

2.2 Expeditioners are expected to treat others with consideration, courtesy, respect, fairness, and tolerance. The general standard expected is one where conduct would not cause dissension or discord amongst Expeditioners or disrupt programs or other responsibilities. The Expeditioner is expected to respect others' rights, opinions, duties, aspirations, and privacy.

2.3 Difficulties may occur between an Expeditioner and other Expeditioners or members of other communities with which the Expedition interacts. It is the responsibility of all to ensure that such difficulties are resolved with courtesy and as quickly and effectively as possible, given the circumstances.

2.4 Smoking is prohibited in all vehicles, accommodation, dining places, and shared places during the Expedition. In all other circumstances, smokers should consider the rights and comforts of nonsmoking companions. In common with all activities involving the use of fire, smokers should take all due care with respect to the fire hazard that smoking creates.

2.5 Use of alcohol and prescription drugs should not compromise broader responsibilities. Drug and alcohol use, including prescription drugs, have clear implications for occupational health and safety and the maintenance of harmonious relations. Therefore the Expeditioner shall refrain from alcohol consumption, realizing that they are expected to be capable of performing their duties and other responsibilities at all times in a safe and effective manner. Expeditioners are reminded of their legal obligations and responsibilities related to the possession and use of prohibited or restricted drugs and the use of alcohol. The use of alcohol during an expedition shall be restricted to moments of 'special celebrations,' and those are expected to occur rarely.

2.6 The Expeditioner shall not behave in a manner that may be classified as 'extreme' nor encourage others to behave in such a manner. Examples of extreme behavior include, but are not limited to:

- threats to personal safety or property;
- disorderly behavior, including being violent, threatening, insulting, or abusive;
- indecent exposure and other gross, obscene, or offensive acts;
- willfully or negligently causing loss or damage to property;
- causing annoyance through the use of offensive language, excessive noise, or in ways that a reasonable person would find offensive;
- recklessly driving ATVs or cars or driving at a too high a speed to be safely followed by all expedition members.

3. RESPONSE TO AUTHORITY AND COMPLIANCE WITH THE LAW, LEGISLATIVE REQUIREMENTS, AND EXPEDITION POLICY AND PROCEDURES

3.1 The Expeditioner shall comply with lawful directions and reasonable instructions. Lawful directions, instructions, and standards of performance are normally issued or determined by the various leaders or persons in charge of any vehicle, field party, or work group. Such instructions and standards shall, at all times, comply with the requirements of the Mars Society's Code of Conduct.

3.2 The Expeditioner shall comply with relevant codes of occupational health and safety and ensure that their actions do not threaten their safety, health, and welfare or that of others.

3.3 The Expeditioner shall be sensitive to harassment issues and will not engage in any harassing behavior. Harassment can take many forms and may consist of offensive, abusive, belittling, or threatening behavior directed at another individual or group. It is often based on some real or perceived attributes or differences. Sexual harassment is any unwanted, unsolicited, and unreciprocated behavior of a sexual nature that is objectionable to another individual. Any behavior or series of behaviors, despite the intention of the individual performing the behaviors, will be considered sexually harassing if they are experienced in that way by the recipient and/or other Expeditioners.

The guidelines against harassment apply both to interactions with other Expeditioners and to interactions with members of communities and organizations that the Expedition encounters.

3.4 The Expeditioner shall comply with the requirements of all federal, state, and local laws, and respect and comply with the requirements of other relevant landholders and operators in the area with whom they may interact.

4. BREACHES OF THE CODE

4.1 Breaches of the Code may result in the Expeditioner being required to leave the Expedition. Transport may be provided to the nearest location with bus service (currently Green River, UT), and the former Expeditioner will then be responsible for all further costs and arrangements of accommodations and transportation.

The Mars Society may refer to appropriate legal authorities any criminal conduct and/or acts of theft, conversion, destruction, or damage to any property that it believes should be handled under relevant federal, state, or local law.

By signing below, I hereby acknowledge that I have read and retained a copy of the MDRS Code of Conduct, and that I fully understand its terms and agree to follow it at all times.

Date: _____

Crew # _____

Signed:

_____

(Sign full legal name)

Name:

_____

(Print full legal name)

TMS:10/12/2020

Detach and attach to Waiver

****

The Expeditioner has read, retained a copy, and understands the MDRS Code of Conduct and agrees to follow it at all times.

Date: _____

Crew # _____

Signed:

_____

(Sign full legal name)

Name:

_____

(Print full legal name)

Appendix D. Food Inventory

BASICS:

Baking Powder
Baking mix
Baking Soda
Corn Meal
Flour, All Purpose
Flour, whole wheat
Milk, almond
Milk, coconut
Milk, powdered
Oil, Olive
Oil, Vegetable
Sugar, brown
Sugar, white
Yeast

FOOD ITEMS:

Almonds
Biscuit mix, Cheddar Bay
Brownie mix
Cheese, dry Parmesan
Chocolate bars
Chocolate chips
Couscous, varied
Crackers, Graham
Crackers, Saltine
Frosted Flakes
Granola
Honey
Jam
Jambalaya Mix
Kidney beans
Lentils
Nutella
Oatmeal
Pancake Mix
Pasta, various
Peanut butter
Peanuts, dry roasted
Pinto beans
Potatoes, instant mashed
Raisins
Raisin Bran
Rice, brown
Rice, white
Rice Krispies
Salsa
Soup mix, various
Spam, canned
Trail mix
Quinoa

BEVERAGES:

Coffee
Hot Cocoa
Nesquik Chocolate mix
Orange Delite
Tea, black
Tea, green

NON-FOOD ITEMS:

Baby wipes
Bleach
Digester for toilet
Dishsoap
Garbage bags
Hand sanitizer
Liquid Cleaner
Lysol disinfectant spray
Paper towels
SOS pad
Sponge
Toilet cleaner
Toilet paper
Towels, kitchen
Water filter, Brita

FREEZE DRIED FOODS:

Meat:

Beef Crumbles
Chicken
Sausage Crumbles

Fruits:
Apples, cinnamon
Bananas
Blueberries
Mango
Strawberries

Vegetables:
Broccoli
Carrots
Cauliflower
Celery
Corn
Mushrooms
Onions
Peas
Peppers, red and green
Potato slices
Spinach
Sweet Potatoes
Tomato powder

Other:
Eggs
Butter powder

SEASONINGS:
Hot sauce
Bouillon, beef
Bouillon, chicken
Bouillon, vegetable
Cayenne pepper
Celery Salt
cinnamon
Curry powder
Garlic Powder
Italian Seasoning
Lemon pepper
Lemon powder
Onion powder
Pepper
Saffron rice seasoning
Salt
Soy sauce low sodium
Vanilla

Please note that due to the worldwide shipping problems and shortages happening, not all food items may be available during your rotation and frozen foods may be provided instead of freeze-dried.

Appendix E. Pack list

MDRS 2022-2023 Field Season

Personal Equipment List

Please read this carefully and make sure you have what you need before you arrive at MDRS.

These lists are suggested equipment for each MDRS crewmember. They do not cover all details of what you should consider bringing for your rotation. Pay particular attention to the time of year of your mission and plan accordingly.

Environment

The MDRS is located in the high desert plateau country near Hanksville, Utah. Weather can range from pleasant to very hot or cold, depending on the season. In winter and early spring, temperatures may drop well below freezing (20°F or approx. -5°C, especially early in the morning) and rise to very pleasant levels (60°F/15°C on some afternoons). The air is usually very dry, but it may snow, sleet or rain. Winds can peak to 50 kts and wind chill is an important factor to consider. The area can be muddy during the rainy season (October through March). Late spring and summer are usually quite hot and dry (100°F/ 37°C daily highs), and afternoon thunderstorms are common in the highlands. Flash floods are a potential hazard. If you plan to do field work, familiarize yourself with basic desert safety.

IMPORTANT NOTE: NOTHING you bring can remain at the HAB when you leave!! Unless with very explicit permission of the Director!
NO EXCEPTIONS! This includes supplies you bring for your research.

Batteries

All crewmembers should bring the batteries (rechargeable or not) they will need. **NOTE: please remove dead or near-dead batteries from the MDRS after use.** Be sure to dispose of the batteries in an environmentally sound way and in accordance with applicable laws.

Additional Note: We may charge for disposal of any batteries left at MDRS. It will vary with the size of the battery and the amount will be taken out of your crew's deposit.

Toiletries/Personal Care Products

Crews are allowed to use their own toothpaste and biodegradable shampoo, conditioner and body soaps (liquid soaps recommended, keeping in mind that we have a septic system and are not on a sewer line). Each crewmember will have a small cubby in the shower room for storage of toiletries.

What to Pack

In the list of items below:
"Required" designates equipment/gear that each field team member MUST bring along. In some cases, a spare is required. You should definitely have ALL of this equipment in order to be properly prepared for your rotation at the MDRS.
"Recommended" designates equipment/gear that each field team member is strongly advised to bring along. These are items that are not required but are likely to make your life A LOT more pleasant.
"Optional" designates additional suggested equipment/gear. This is equipment that you should bring along if you think you will enjoy having it.

Personal Clothing and Gear

What to Bring	How Much	Need	Notes
Clothing	For 15 days with re-wearing	Required	Bring at least one change of warm clothing (heavy sweater, fleece, long pants, long/thermal underwear) as the Utah high desert can be cool at night. The station has colder and warmer sections; for maximum comfort, dress in layers.
Underclothes	8-15	Optional	There are no laundry facilities at MDRS but space is also limited so consider wearing undergarments for more than 1 day. You can handwash in a bucket as well.
Socks	8-15 pairs	Required	Bring 15 if you want to wear a clean pair of socks daily. It gets dirty out here quickly.
Bath towel, Hand towel, Washcloth	2+	Required	You'll get a short Navy shower every 3-4 days. Practice at home especially for hair washing. A washcloth is helpful for low-water-use bathing. Consider a shower cap if your hair is long. The hand towel will be used for drying your hands as you wash them throughout the day.
Baseball cap or brimmed hat	1	Optional	Great for keeping your head out of the sun when outside and not "in sim". Not for wearing on EVA.
EVA Gear	see right	Required	Hiking boots – (Black or brown only) sturdy and already broken in. You must wear your personal boots on EVA. Be aware that they will get extremely muddy and/or dusty. Please note that these need to be BOOTs, not shoes. You will not be allowed on EVA if you do not have proper boots. Black gloves (No other color) – 2+ pairs. Inexpensive work gloves are good for cool to warm weather. Use heavy winter gloves in wintertime. Expect gloves to get very dusty and muddy. Long underwear – or long sleeve t-shirt or turtleneck, plus full-length leggings or yoga pants. Worn inside EVA suit to keep the suit clean and to protect you from chafing by the rough suit fabric. Flight Suit- Your crew needs to supply the flight suits you will use while on EVA. Coordinate with your crew to purchase these in the same color for your mission. You are encouraged to personalize your flight suits with mission patches and nametags.
EVA Gear	See right	Recom-	Stocking Cap –or "do-rag" or bandana in black or dark blue,

		mended	essential to control your hair and secure sunglasses & radio mic on EVAs
Windbreaker or winter jacket	1	Required	Bring a light jacket for night-time activity in the high desert in the warm season. If your mission occurs during the cold season, a winter jacket is essential.
Slippers or indoor sandals	1 pair	Required	To reduce dust, outdoor footwear is not worn in the living space (upper floor of Hab), but going barefoot is not recommended. Also, the stairs are very hard on bare/stocking feet.
Bathrobe and/or Pajamas	1 +	Recom-mended	It's a long way to the bathroom: through a cold, dark lower deck at night, and through a throng of fellow crewmembers in the morning.

Personal Items

What to Bring	How Much	Need	Notes
Duffel Bag (preferred) or big suitcase (NOT recommended)	1	Required	There is limited storage space in the Hab for personal gear. All of your personal belongings must be stored in your stateroom, except your toiletries (in washroom cubby) and hiking boots (in EVA room) Staterooms average 4' wide x 11' long.
Laundry bag	1	Optional	There are no laundry facilities.
Ziploc bags and facial tissue	1-2 boxes each	Recom-mended	Great for collecting and protecting samples as well as protecting personal gear (i.e. cameras) from dust in the field. Consider slide lock zipper bags as gloves impair manual dexterity on EVA.
Sleeping bag or blankets	1	Required	A winter bag is not recommended as the upper deck must stay warm even during the night to prevent water lines from freezing. Stateroom bunks contain NO bedding.
Sheet	1	Required	Mattresses are provided in all staterooms. You are required to cover the mattress with a sheet before placing your sleeping bag on top. No exceptions to this. The mattresses are vinyl covered. If you sleep warm, you may want to consider two sheets and a blanket for sleeping, instead of a sleeping bag
Pillow	1	Optional	Pillows are provided; bring one only if you need a special one for a good night's sleep.
Flashlight or head-lamp	1	Required	Useful at night, for repairing stuff, on EVAs as an emergency tool… Bring spare batteries too.
Personal water bottle	1	Required	Helps you remember to stay hydrated in the dry desert climate
Hand or body lotion, lip care (e.g. chapstick, blistex)		Recom-mended	The high desert is an extremely dry environment. You will be more comfortable and thus more productive if your face and hands are protected by a lotion, and your lips by a lip balm.
Hydrating eye/nose drops	1	Recom-mended	The high desert is both dry and dusty. Required if you are prone to nosebleeds or eye irritation, or if you wear contact lenses
Sunscreen	1	Required	Desert sun can be intense; the high altitude further increases its intensity. EVA suit helmets provide only partial protection.
Sunglasses	1 or 2	Recom-mended	**For UV protection. You cannot wear them on EVA without a doctor's note.**
COVID-19 travel kit	1	Required	Ziplock bag with cloth and/or disposable masks, gloves, disinfectant travel wipes, hand sanitizer

Personal Field Gear

What to Bring	How Much	Need	Notes
Utility knife (like a Swiss Army knife or Leatherman combo tool)	1	Strongly recom-mended	Very handy for repairs and field work. Note the airline restrictions on these items – bring yours in checked baggage.
Rock Hammer	1	Optional	Recommended for geologists. Rocks in the area are mostly "soft" so a standard sedimentary pick/hammer ("mason's tool") should suffice; the Hab has one sledge hammer. Ship in checked baggage. NOTE: THERE ARE NO ROCK HAMMERS AT THE HAB.
Personal (handheld) GPS & charger or batteries	1	Recom-mended	If you have one, bring it; if not, use the ones at MDRS. At MDRS, GPS data are recorded in UTM NAD 27 Zone 12 North Northings/Eastings. Know how to use the GPS and to set it to the correct measurement system. Bring spare batteries.
Field Book, Pens, office supplies	1	Recom-mended	Waterproof field book recommended. Please also bring any paper, pens and office supplies you commonly use, as we no longer stock them.
Field bag	As needed	Recom-mended	To hold supplies on EVA
Camera/digital camera with charger and/or extra batteries	1	Recom-mended	If you have it, bring it.
"Canned Air"		Optional	Useful for cleaning cameras and other personal equipment in the field and in the Hab
Tripod, remote shutter switch	1	Optional	Extremely useful for field photos – the desert is windy and spacesuit gloves are awkward.
Personal laptop/ iPad/phone	1	Recom-mended	**Disable all updates before arrival at MDRS, to conserve bandwidth.**

Other Personal Gear

What to Bring	How Much	Need	Notes
Reading materials	As needed	Optional	Downloaded books, magazines, textbooks related to your field of work. Internet bandwidth is small so you can't download anything once you are at MDRS.
Movies	as needed	Optional	Note: MDRS doesn't have a DVD player – DVDs are usually watched from a crewmember's laptop.
Other fun stuff	As needed	Optional	Crew members should consider bringing something they might like to do – cards, board games, a toy, a small musical instrument, an art or craft project. However, there is no guarantee of spare time.
Food & candy	As desired	Permitted	You may bring whatever personal food you want.
Personal medications	As needed	As needed	Medications stored in the Hab refrigerator/freezers must be labeled with your name and crew number. Place them in a small locked box if privacy is important to you. Consider coordinating with your crewmates to make sure you have all

			the over the counter medications you may need during your stay. We do not provide a store of these medicines.

Things not permitted at MDRS

Perfume or Cologne	None	Not permitted	Some individuals are sensitive to fragrance products. Be kind and don't use them at MDRS.
Alcoholic beverages	None	Not permitted	Not permitted at NASA stations and analogs and not permitted at MDRS.
Cigarettes, cigars, bongs, e-Cigarettes	None	Not permitted	Smoking and vaping are not permitted at MDRS.
Candles	None	Not permitted	Candles are allowed as part of your religious ceremonies ONLY. Please inform the Director of your use prior to your rotation.
Firearms	None	Not permitted	MDRS is a firearm free campus.
Plastic hooks or anything that you use to stick things to the wall, including tape of all kinds	None	Not permitted	Crewmembers are no longer allowed to stick hooks, nametags, crew decals or anything at all on the walls at MDRS.

One final note: In the past, in keeping with the idea that everything in a Hab would be valuable and used on Mars, we kept a varied supply of things you would commonly use at a research station. This has changed. Because we support so many crews each season, and in an effort to reduce the accumulation of supplies that don't get used, many of the small things you relied on being at the station may no longer be there. Please check with us before assuming what you need is available, and please plan accordingly and bring what you think you may need.