



WINTER MOUNTAINEERING EQUIPMENT CHECKLIST

This list was designed for the “worst case scenario,” a trip with significant inclement weather. In serious conditions it’s not uncommon for a climber to need every piece of clothing and equipment on this list. However, if a program does not encounter significant weather, there may be items here that are not used. As you prepare for your trip, it’s important to plan for the worst and hope for the best.

At the start of the day, your guide will ensure that everyone is adequately prepared for the day. They will also be able to refine your day pack to make sure that you bring exactly what’s needed given the forecast. It is acceptable to bring too much clothing or equipment to your initial meeting. And it is acceptable to bring things that you have questions about. Extra equipment can always be left behind in the van.

Rocky Mountain National Park, CO and Ouray, CO: Temperatures and weather conditions in Colorado in the winter typically range from the teens to below zero. Along with cold temperatures, you might experience snow storms, wind, or even freezing rain/hail.

Sierra Nevada, CA: Temperatures and weather conditions in the Sierras in the winter are similar to Colorado winter conditions. The temperatures are typically in the teens but can easily drop to -10°F to -20°F and be accompanied by high winds and blowing snow.

Rentals: Equipment that is available for rent through the AAI is designated with a “Rent” check box. These items must be requested for rent and paid for prior to your trip start, this can be done either via email (sw-coordinator@alpineinstitute.com) or phone (360-671-1505).

Call or Email the Equipment Shop for Advice on Gear: Please feel free to contact the shop to help you get ready for your trip. Your comfort and safety depend on being well equipped. Whether you get your gear from us or just get advice, we’re here to help you prepare.

Call: (360) 671-1570 - Email: shop@alpineinstitute.com - Website: <https://shop.alpineinstitute.com/>

Please be sure to check the forecast several days prior to your course to ensure that you are properly prepared.

[NOAA Estes Park, CO Forecast](#)

[NOAA Ouray, CO Forecast](#)

[NOAA Bishop/Lone Pine Area, CA Forecast](#)

CLOTHING

Beanie/Toque

Wool or synthetic, must fit under your helmet.

Buy
 Own

Sun Hat (Optional)

Ideally fits under your climbing helmet. Visors or athletic hats from companies like Ciele or Skida are comfortable, vent well, and are easier to clean and dry out.

Buy
 Own

Buff / Neck Gaiter

Look for one that is UPF rated. Brighter colors work better for warmer conditions and darker colors for colder conditions.

Buy
 Own

Glacier Glasses

Mandatory. Look for a pair that fits well and has side shields. The lenses should be dark enough to not let more than 12% of visible light through. Photochromic (variable tint) lenses are more expensive but are usable in a wider range of activities.

Examples: Julbo Spectron 4 Lense, Julbo Reactiv Performance 2-4 (Zebra Lense) or Julbo Reactiv High Mountain 2-4 (Cameleon Lense)

NOTE: Those using contact lenses should also bring a pair of prescription glasses in the event that your contacts or solutions are lost or damaged by freezing. If you only use prescription glasses, we recommend "OTG" (over the glass) or "Frame-over" style sunglasses made by the company Cocoon.

Buy
 Own

Ski Goggles (Optional)

For use in high winds and heavy snow. These should be lightly tinted but not so dark that they will reduce visibility in low light conditions. They should block 100% of UV light. If you wear prescription glasses, these must fit comfortably over your glasses.

Buy
 Own

Headlamp

Bring extra batteries or charger for rechargeable battery style. Ideal range is 200-350 lumens.

Examples: Petzl Swift RL, Petzl Actik

Buy
 Own

Liner Glove

Thin, lightweight, wool or synthetic gloves. Size to fit snug but not too tight. Generally these are worn alone in temperatures above 25°F(-4°C) and when precipitation is not present. UPF rated liner gloves are ideal for sun protection. Bring 1-2 pairs.

Examples: Outdoor Research Vigor Sensor, The North Face Etip Grip

Buy
 Own

Midweight Softshell Glove

Bring 1-2 pairs. Used for belaying, tying knots, rope management, etc. Dexterity and durability are key. These gloves provide slightly more insulation than a liner glove and are generally used in temps of 15°F to 30°F(-9°C to -1°C) while actively using your hands. Look for a comfortable snug fit favoring dexterity and a durable leather or synthetic palm. Water-resistant material is recommended because they dry out faster than waterproof gloves.

Examples: Mountain Equipment Super Alpine, Rab Vapour-rise

Buy
 Own

Expedition / Hard Shell Glove

Waterproof and insulated gloves. If the glove lacks insulation then size it to fit a liner glove inside. Mainly used in wet conditions, cold temperatures, or when not mobile.

Examples: Black Diamond Renegade, Outdoor Research Highcamp, Black Diamond Guide

Buy
 Own

CLOTHING CONTINUED

Sports Bra

Wool or synthetic, comfort is key. Avoid bras with adjusters and clasps that could get compressed by your pack straps. Racerbacks are popular options for keeping straps in place.
Examples: Girlfriend Collective Topanga, Vuori Elevation

Buy
 Own

Base Layer

This will be your main base layer and should be midweight synthetic or wool, no cotton. Long sleeves are preferred.
Examples: Patagonia Capilene Cool Daily Hoody, Outdoor Research Echo, Rab Pulse

Buy
 Own

Active Insulation Layer

Lightweight "gridded fleece" or lightweight synthetic insulated jacket. Hood preferred. Active insulation jacket weight at 40g/m² and heavier Insulation jacket at 60g/m² or 80g/m²
Example: Patagonia R1, Patagonia Nano Air, Arc'teryx Proton LT

Buy
 Own

Soft Shell Jacket or Windproof Jacket

A soft shell jacket is considered an 'action layer'. Its materials are designed to stretch and breathe while also maintaining wind and water resistance. This allows the user to leave this jacket on for a wide range of temperatures and conditions throughout the day, without the hassle of constantly changing layers.
Wind proof jackets are lightweight and packable, but lack the breathability and stretchy nature of the soft shell. Windproof jackets are ideal for blocking wind and light precipitation during low output activities.
Example SoftShell: Black Diamond Alpine Start Hoody, Rab Borealis, Mountain Equipment Squall, Patagonia Houdini Air.
Example Windproof Jacket: Patagonia Houdini, Arc'teryx Squamish Hoody

Buy
 Own

Insulation / Puffy Jacket

Down or Synthetic. This piece is worn in cold conditions or when not moving. Hood preferred. If choosing Down, water-resistant Down treatment is preferred to help prevent matting and loss of insulating ability if the jacket gets wet.
Example: Arc'teryx Nuclei FL, Patagonia DAS light, Patagonia Down Sweater, Arc'Teryx Cerium LT

Buy
 Own

Down Parka

These jackets come in many shapes, sizes and temperature ratings. If you tend to get cold easily, opt for a slightly warmer and more substantial parka. Otherwise, choose a down parka that is still fully baffled, includes a hood, and offers sufficient coverage over your waist.

- Materials: Primaloft, down
- Weight: 992 – 1560 grams

Buy
 Own

Hard Shell Jacket (Waterproof Rain Jacket)

Non-insulated jacket with a waterproof and breathable membrane. 3-layer construction is recommended. It must have a hood, ideally a helmet compatible hood. When sizing make sure it can fit over other layers. Ski jackets are discouraged because they are usually not waterproof and have heavy insulation.
Materials: Gore-Tex, eVent, Drilite, H2NO, Pertex Shield
Example: Patagonia Torrentshell, Arc'Teryx Alpha AR, Mountain Equipment Lhotse

Buy
 Own

CLOTHING CONTINUED

Undergarments

Wool or synthetic. Long, compression style undergarments can help reduce inner thigh chafing.

Buy
 Own

Base Layer Pant (aka "Long Johns")

Wool or synthetic. They should fit comfortably under your soft shell pants and should be at least midweight. One pair is sufficient.

Example: Patagonia Capilene midweight or thermal weight (Thermal is warmer)

Buy
 Own

Soft Shell Pant

Thin, weather-resistant, breathable, and stretchy. You will wear these a majority of the trip.

Materials: Exolite, Fortius, Schoeller, eVent, Gortex, H2No

Example: Patagonia Altvia, Mountain Equipment Ibex, Arc'teryx Gamma FL

Buy
 Own

Hard Shell Pant (Waterproof Rain Pants)

Non-insulated, waterproof and breathable membrane. Full side zips are recommended. Ideally has at least a 1/4 length zipper from the bottom of the pant cuff in order to get pants on and off while wearing mountain boots. When sizing make sure it is able to fit over a base layer and soft shell pants. Insulated ski pants are strongly discouraged due to lack of waterproofness and heavy insulation.

Materials: Gore-Tex, eVent, Drilite, H2NO, Pertex Shield

Example: Patagonia Torrentshell, Arc'Teryx Beta Pant

Buy
 Own

Socks

Wool or synthetic socks that are at least mid calf height. Modern boots are designed to insulate your feet, so a thick sock is not recommended as these tend to lead to blisters and moisture retention. Using a lighter weight sock allows for a more accurate boot fit. Wearing a "silk-weight" liner sock beneath your hiking sock can reduce friction on the skin and mitigate blister development. 3 pairs is generally sufficient.

Example: Darn Tough Coolmax Lightweight

Buy
 Own

Approach Shoes (Optional)

Made with sticky climbing rubber, used by many for approaches to and from the rock climbing areas as well as for climbing some of the easier routes.

Examples: La Sportiva TX4, TX2, Scarpa Rapid

Buy
 Own

Mountaineering Boots

Must be stiff (full-shank or equivalent), crampon compatible, mountaineering boots. Double boots highly recommended for winter mountaineering courses.

Example Double Boot: Scarpa Phantom 6000, La Sportiva G2SM

Example Single Boot: La Sportiva Nepal Cube, Scarpa Mont blanc Pro

Buy
 Own

Gaiters

Knee or calf height. Keep snow and ice out of your boots and socks. Also help protect pants from crampon holes.

Example: Outdoor Research Crocodile

Buy
 Own

CLIMBING

Ice Axe

A straight or slightly curved shaft ice axe is recommended. Adze is required. Please contact the Equipment Shop if you have any questions.

Use the following info as a rough guide on length. Ice axe leashes are discouraged and not recommended.

Personal Height	Recommended Length of Axe
5'8" or shorter	50-55cm
5'9" - 6"	55-60cm
6'1" and up	60-65cm

Example: Petzl Glacier, Petzl Sum'Tec, Black Diamond Raven Pro

- Buy
 Own
 Rent

Harness

Make sure the harness has a belay loop and gear loops. When sizing, it should fit over your clothes when you have multiple layers on. A more robust, padded harness is ideal for this program.

Example: Petzl Adjama, Arc'Teryx AR-395a

- Buy
 Own
 Rent

Helmet

Must be UIAA rated for climbing. Be aware that foam, break-away style helmets like the ones listed below are susceptible to damage if being loaded in a checked bag.

Example: Petzl Meteor, Black Diamond Vision

- Buy
 Own
 Rent

Crampons

Must be steel crampons with front points and compatible with your mountaineering boots.

Example: Petzl Vasak, Petzl Sarken

- Buy
 Own
 Rent

Slings

Bring one 48in/120cm & one 24in/60cm pre-sewn sling; Must be UIAA rated for climbing.

Example: Mammut Contact, Black Diamond Nylon Runner

- Buy
 Own

Belay Device

Bring an auto-blocking device that accepts two ropes.

Example: Black Diamond ATC Guide, Petzl Reverso

- Buy
 Own

Carabiners

Must be UIAA rated for climbing. Available for sale in our equipment shop.

- Four large pear shaped munter-style locking carabiners.
- Five non-locking wire gate carabiners.

Example: Petzl Attache, Camp Photon Wire

- Buy
 Own

Rappel Backup

The Sterling hollow Block or Beal Jammy are recommended for their heat resistant properties.

A 4ft length of 6mm nylon accessory cord will also suffice.

Example: Beal Jammy 35mm, Sterling Hollowblock 2 13.5

- Buy
 Own

CLIMBING CONTINUED

Trekking / Ski Poles

Two poles are required. Poles help with balance while hiking with a heavy bag and decrease the pressure on your knees during steep descents. Poles should have snow baskets.

Example: Black Diamond Expedition 3

- Buy
 Own

Prusiks

6mm nylon cord in three lengths; 13 ft, 6 ft, 5 ft. Available through the AAI Equipment Shop. The Prusik kits we supply are specifically chosen for their supple nature and high strength, and it is encouraged that you use these. Many types of nylon cord can be stiff and more difficult to work with.

- Buy
 Own

Internal Frame Pack

65L-75L is a recommended size range. Mountaineering specific packs, instead of backpacking packs, are a good way to shave weight.

Example: Black Diamond Mission 75, Mountain Hardware AMG 75, Arc'Teryx Bora 75

- Buy
 Own
 Rent

Snowshoes

Snowshoes should be equipped with an integral crampon and/or aggressive traction on the bottom of the snowshoes.

NOTE: Large profile basic models of snowshoes made by Tubbs, Atlas, and Sherpa do not work well and are not recommended. Models by MSR are proven and quite durable

- Buy
 Own
 Rent

Avalanche Equipment

If you have your own Avalanche Transceiver, Probe, and Shovel, please contact AAI to confirm that they will be appropriate for this course.

- **Avalanche Transceiver:** Your beacon MUST be a modern, single frequency (457kHz) beacon. Three antenna beacons are required. If your beacon is older than 5 years, you should consider retiring it or returning it to the manufacturer to have it tested for function and frequency drift.
- **Probe:** 230cm minimum. Carbon fiber is lighter and suffers less deflection than aluminum models.
- **Shovel:** We require collapsible metal (aluminum) shovels with a blade surface of at least 300 cubic centimeters. Newer models are lighter, stronger, and more ergonomic than older ones.

- Buy
 Own
 Rent

CAMPING

Tent

Double wall 4-season tent is recommended, This tent should be capable of withstanding winds up to 40 mph and continuous, multi-day rain or snow. If there are any questions please consult our Equipment Shop to see if your tent is okay to use.

Example 4-Season : Hilleberg Unna, Black Diamond Eldorado

- Buy
 Own
 Rent

Sleeping Bag

Down is the sleeping bag insulation of choice. Rated from 10°F (23°C) to 0°F (18°C) If you know you sleep cold take this into consideration when purchasing/selecting your bag.

Example: Mountain Equipment Fireflash (5), Western Mountaineering Alpinlite (20), Rab Mythic Ultra 180 (32)

- Buy
 Own
 Rent

CAMPING CONTINUED

Compression Stuff Sack

For your sleeping bag. If it is a down bag, a waterproof compression sack is recommended.

- Buy
 Own

Sleeping Pad

Bring two; one inflatable and one closed cell foam. The foam pad helps insulate from the snow and serves as a backup to the inflatable pad.

Example: ThermaRest XTherm

- Buy
 Own

Stove and Fuel

Liquid fuel or canister stove.

Example: Soto Windmaster, MSR Windburner

- Buy
 Own
 Rent

Pots

Bring one pot. Bring a bigger pot for melting snow; 1.5L to 2L

- Buy
 Own

Utensils

Long-handled spoons make stirring hot liquids safer, and metal ones tend to not break as easily in cold temperatures.

- Buy
 Own

Bowl

Bring a plastic bowl or mug, preferably with insulation.

- Buy
 Own

Lighters

Bring two.

- Buy
 Own

Hydration & Water Bottle Parka

3L capacity is recommended, though some people need more. A common approach is to bring a 2-3 liter bladder and a 1 liter hard sided bottle with a water bottle parka. The bottle is an important backup to the bladder if it gets punctured. A hard-sided bottle may also double as a mug for hot water, though not every bottle is designed to hold boiling water.

For Camelbak style hydration bladders, bring a drinking tube insulator, as the tube can freeze up. If you choose to use this system, be aware that they require constant vigilance in order to avoid freezing.

- Winter courses: Bring more water carrying capacity, usually in the form of bladders (4L to 8L) to reduce the number of times you need to melt snow.

Example: Nalgene 32 oz bottle, Hydrapak Seeker 2-3L, MSR Dromedary 4-8L

- Buy
 Own

Water Purification

Water purification of some form is required. Aquatabs are a great option. Steripens are an acceptable alternative to purification tablets.

Example: Aquatabs, SteriPen, Katadyn BeFree, Platypus Quickdraw

- Buy
 Own

Food

You are responsible for your own food for the duration of the course. Please consult our meal planning page. You should arrive on the first morning of your course with enough food for your program length.

- Buy
 Own

OTHER ESSENTIALS

Toothbrush and Toothpaste

Travel size recommended

Buy
 Own

Hand Sanitizer and/or Wet Wipes

Required. Used after going to the bathroom and before eating. Wet wipes can be used for the “mountain shower.”

Buy
 Own

Toilet Paper

The provided solid waste bags have a small amount of toilet paper with them, but most people do not find this to be adequate. Estimate how much you’ll need for a program of this length and place that in a plastic zip-lock bag. An extra zip lock bag can be helpful for pack-out of used paper. If you plan to use wet wipes, be wary of scented or exfoliating types as these can be an irritant for some people.

Buy
 Own

Pee Cloth (Optional)

A reusable, antimicrobial pee cloth, used in the place of toilet paper or wet wipes.

Example: Kula Cloth

Buy
 Own

Urination Device (Optional)

Pee funnels such as the GoGirl or Freshette. Rigid pee funnels hold their shape better. Used in conjunction with a pee bottle or while on a rope team. These can help mitigate the need to squat. *Example: Freshette*

Buy
 Own

Menstrual Cup (Optional)

There are many things to consider about backcountry menstruation, click on the [link](#) for more information.

Examples: Diva cup, Saalt, Lunette

Buy
 Own

Sunscreen

At least an SPF of 30+, zinc-based is preferred. Small travel-size tubes are recommended so you can put them in a close-by pocket for easy access.

Examples: ZBlok 45, 2oz containers are a nice size.

Buy
 Own

Lip Balm

Make sure it is SPF Rated.

Example: Blistex Gold Five Star Protection SPF 30

Buy
 Own

Personal First Aid Kit

- Band aids
- Blister Treatment
- Prescription Drugs, Ibuprofen, etc
- If you wear contacts, make sure you have spares if you can’t see without them

Buy
 Own

Repair Kit

- Duct tape
- Zip ties
- 6-10ft of 3mm accessory cord
- 2 trash bags

Buy
 Own

OTHER OPTIONAL ITEMS

These items are not required, although many are nice "luxury" items that can make your trip more enjoyable.

Entertainment

Books, games, cards, music player, kindle, etc. For evenings or other down time.

- Buy
 Own

Portable Charging Device

Phone charger, battery pack, or solar panel. You are responsible for your alarm clock each morning. If you are going to use your phone, be sure you have enough power to accommodate this.

NOTE: Solar panels should only be used to charge battery packs. Battery packs should be used to charge devices. Inappropriate use of a solar charger could lead to the depletion of a device's power.

- Buy
 Own

Insect Repellent

Biting insects such as mosquitoes and blackflies can be prevalent during different times of the season depending on conditions and location. This is a nice item to have just in case.

Sometimes even a headnet is a nice item to have. Optional smartphone app. Please have the Mt. Baker (all aspects) maps downloaded prior to the start of your course.

- Buy
 Own

Camera

Phone cameras or small point-and-shoot cameras are preferred. SLR cameras are not recommended due to their size and bulk.

- Buy
 Own

Comfortable Clothing and Footwear

Breathable footwear - like flip flops - as well as some comfortable cotton clothing can be nice to change into after you get back to the van.

- Buy
 Own

Car Charger

Consider bringing an extra battery pack as well, having a lot of people using car charger cables is difficult.

- Buy
 Own