

AMTL 4 Ski Mountaineering

Equipment List

Conditions in the mountains vary dramatically from season to season, and sometimes even throughout the same day. This can make the process of preparing equipment for a winter backcountry trip difficult. On the one hand, a recreationalist wants to be light. But on the other hand, also wants to have everything he or she needs if there is a storm.

This list is designed as a “*worst case scenario*”, a trip with significant inclement weather. 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 is important to plan for the worst and hope for the best.

On the first day of your program, an AAI Guide and Equipment Specialist will work with you to refine your mountain kit. They will ensure that you bring exactly what is needed. It is acceptable to bring too much clothing and equipment to your initial meeting. It is also fine to bring things that you may have questions about. **Any extra equipment can be left behind at our Gear Shop for safekeeping.**

Please be sure to check the forecast several days before your course to ensure that you are properly prepared. You can view the weather here:

[NOAA Mt. Baker-Snoqualmie National Forest Weekly Forecast](#)

PROVIDED EQUIPMENT: Climbing rope, anchors, solid waste bags.

RENTALS: Equipment available for rent through the AAI Equipment Shop is designated with a “Rent” check box. These items can be rented on the first day of your course.

You can call or email the Equipment Shop for advice on gear.
shop@alpineinstitute.com
360-671-1570

Clothing

Beanie/Toque (Optional) Wool or synthetic. Must fit under a helmet. Easily replaced with hooded layers after the early season.	☐ Buy ☐ Own
Sun Hat Ideally fits under a helmet. Ball caps with a button on top are NOT recommended. Visors or athletic hats are more comfortable, vent better, and are easier to clean and dry out.	☐ Buy ☐ Own
Buff / Neck Gaiter Look for one that is UPF-rated. Lighter colors are better for warm conditions and darker for colder conditions.	☐ Buy ☐ Own
Glacier Glasses THESE ARE MANDATORY. Look for a pair that fits well and has side shields. The lenses should not let more than 12% of light through. Photochromic are more expensive, but usable in a wider range of light. <i>NOTE: Those using contacts should also bring a pair of prescription glasses in the event that your contacts or solution are lost or damaged. If you only use glasses, get a pair of over-the-glasses glacier glasses.</i>	☐ Buy ☐ Own
Ski Goggles For use in high winds and heavy snow and skiing downhill. 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. Photochromic (variable tint) lenses are highly recommended.	☐ Buy ☐ Own
Liner Gloves Thin, lightweight, wool or synthetic gloves. Size to fit snug but not too tight. Phone-compatible fingertips and palm texture are nice to have. These could be worn alone in temps greater than 25°F when it is dry. UPF rated are ideal.	☐ Buy ☐ Own
Hard Shell Glove Waterproof and insulated. If the glove lacks insulation, size it to fit a liner glove inside. Mainly used in wet conditions, cold temps, or when not moving. <i>NOTE: April-May courses are often much colder and may require more heavily insulated gloves like the Black Diamond Guide.</i>	☐ Buy ☐ Own
Sports Bra Wool or synthetic. Comfort is key. Avoid bras with adjusters and clasps, as they could get compressed by your pack straps. Racerbacks are a popular option.	☐ Buy ☐ Own

Socks Wool or synthetic socks that are over the ankle height. If you are skiing then socks that are just below the knee, or go above the edge of your ski boot are recommended. Having two to three pairs on hand is recommended in case a pair gets wet.	☐ Buy ☐ Own
Undergarments Wool or synthetic. Long, compression-style undergarments can help reduce inner thigh chafing.	☐ Buy ☐ Own
Base Layer A lightweight, wool or synthetic sun hoody is ideal. UPF 30+ sun protection is best. UPF clothing works better than sunscreen.	☐ Buy ☐ Own
Active Insulation Layer Lightweight “gridded fleece” or lightweight synthetic insulated jacket. Hood preferred. Active insulation weight - 40g/m2. Heavier insulation weight - 60-80g/m2	☐ Buy ☐ Own
Soft Shell Jacket A soft shell is a weather-resistant, breathable, and stretchy freedom-of-movement piece. This piece is versatile in the sense of movement. It is often called an “action layer.” It is weather resistant, meaning it can put up with light showers and wind. Also if it gets wet it dries fairly quickly. This enables you to not have to stop and put on another piece when the wind picks up or a light snow shower happens. Because it is water resistant, and not waterproof, it also breathes fairly well. This enables you to move without overheating, so you don’t have to constantly stop to change out layers to regulate body temperature. They are also made of a stretchy material so there are no restrictions to your movement during activity. Put all those together and you have a pretty versatile layer, the Soft Shell. Hood preferred.	☐ Buy ☐ Own
Insulation Jacket AKA the “puffy”. 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.	☐ Buy ☐ Own
Hardshell Jacket (Waterproof Rain Jacket) Non-insulated jacket with a waterproof and breathable membrane. Three-layer construction is recommended. It must have a hood, ideally helmet-compatible. When sizing, make sure it can fit over other layers. Ski jackets are discouraged because they are usually not waterproof and have heavy insulation. <i>Look for Gore-Tex, eVent, Drilite, H2NO, Pertex Shield.</i>	☐ Buy ☐ Own ☐ Rent
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. Must fit over all of your other layers. This parka is ideal for courses where evening and night time temps get very low, this will increase your comfort level considerably after a long day when you are spending time around camp the last few evenings. It is optional depending on your comfort level in the cold, and conditions for the week.	☐ Buy ☐ Own

Base Layer Pants Wool or synthetic.	☐ Buy ☐ Own
Softshell Pants Thin, weather-resistant, breathable, and stretchy. This layer is helpful if the weather is nice enough and dry enough, where having a more breathable layer than a hard shell might be more comfortable, typically late winter/early spring.	☐ Buy ☐ Own
Hard Shell Pant or Ski/snowboard pant Non-insulated, waterproof and breathable membrane. Full side zips are recommended. When sizing make sure it is able to fit over a base layer and soft shell pants. Having a front pocket that is Avalanche Beacon compatible can be helpful.	☐ Buy ☐ Own

***Note About Pants**

If you are wearing ski/snowboard pants, then that layer should suffice, consider adding a base layer for additional warmth. However, if you do not have ski specific pants, then you will want to stick to the base layer, soft shell layer and hard shell layer combination. Please feel free to reach out to the AAI Equipment shop with any further questions.

Skiing / Splitboard & Avalanche Gear

Skis Skis with a backcountry flex (softer) are preferable to skis designed for hard packed lift serviced skiing. You may choose to bring either telemark skis or alpine touring skis. Telemark skis must be equipped with full metal edges. If you use a cable binding, bring a spare cable. Equip your skis with runaway straps. Alpine touring skis should use bindings that allow for forward and lateral release.	☐ Buy ☐ Own ☐ Rent
Ski Boots We strongly encourage the use of randonee (AKA AT or alpine touring) equipment. If you are an experienced telemark skier, modern telemark gear will also be accepted. Make sure your boots fit you snug enough for downhill performance, but are comfortable enough to keep your toes warm. The hinge should be flexible enough to allow for comfortable walking, even for long distances. They must be equipped with a deep rubber lugged sole.	☐ Buy ☐ Own ☐ Rent
Ski Crampons Most useful for March courses. These come in a variety of widths, be sure yours are wide enough to fit over your skis.	☐ Buy ☐ Own

Skins For PNW, skins with more traction are recommended over skins with more glide. <i>NOTE: These can only be rented if you are renting the skis or board as well.</i>	☐ Buy ☐ Own ☐ Rent*
Splitboard Make sure to pick a board that goes with your weight, riding style, and terrain that you want to be on. For powder, softer rocker boards are recommended, whereas for more freeride style you will want a stiffer, cambered board. For women, companies are making more women specific splitboards with smaller sizes, narrower widths, and softer flexes. It is also recommended to get the same type of boot and bindings as your board. If you are getting a stiff board, then you will want stiffer bindings and stiffer boots as well. Binding systems where you can lock down the heel is a bonus. Make sure to size your board, bindings, and boots together correctly. For example, if you have large feet, make sure that your boots and bindings aren't too big for your board. You don't want your boots hanging too far off the edge of your board (No more than an inch) or you will get toe/heel drag. It is also stance dependent, if your feet are angled more, there is more room for a bigger boot. <i>NOTE- If you are bringing your own board, splitboard specific binding systems are recommended. But if you own regular snowboard bindings, there are kits to convert those for splitboard travel, in case you don't want to spend the money. These must be purchased separately before you arrive. Conversion kits are no longer available at our Equipment Shop.</i>	☐ Buy ☐ Own ☐ Rent
Splitboard Boots Splitboard touring-specific boots are recommended. They are tailored for touring and also have the added benefit of stiffer models. They also tend to have stiff, more mountaineering boot-like soles which makes it nicer for kicking steps and climbing. <i>Splitboard boots must be crampon compatible.</i>	☐ Buy ☐ Own
Poles Adjustable trekking poles with a full size basket are recommended. Ski/Probe poles are not a substitute for the avalanche probe. It can be helpful for touring to have ski poles that have a hooking capability at the top of the handle. Collapsible/foldable poles fit into your pack better when riding down.	☐ Buy ☐ Own ☐ Rent
Splitboard Crampons These are unique for your bindings and your board width, so they need to be acquired before the start of your program.	☐ Buy ☐ Own
Helmet A ski or snowboard specific helmet is necessary for this course. Preferably a helmet with Multi-directional Impact Protection System (MIPS). Ensuring that your helmet fits properly is critical for safety and comfort.	☐ Buy ☐ Own

Avalanche Probe 230cm minimum. If you are in the Cascades with an especially deep snowpack then a 320cm probe is recommended. Required even if bringing 'probe poles'. Carbon fiber is lighter and suffers less deflection than aluminum models. Look for a model that has graduated depth markings for use during snow pit studies.	☐ Buy ☐ Own ☐ Rent
Avalanche Beacon Your beacon MUST be a modern, 3 antenna, single frequency (457kHz) beacon. 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. 2 antenna beacons are obsolete.	☐ Buy ☐ Own ☐ Rent
Shovel We require metal (aluminum) shovels. Newer models are lighter, stronger, more packable, and more ergonomic than older ones. Avalanche shovels now have a UIAA rating, so keep that in mind when shopping. Additionally we recommend a mid-sized blade that can fit in your pack. Smaller blades don't move enough snow, and larger blades move too much snow where efficiency is lost. A shovel that has a hoe-mode and snow profile friendly blades are also a bonus.	☐ Buy ☐ Own ☐ Rent
Hydration 2 -3 liters of water capacity minimum. Two or three water bottles, usually one-l iter wide mouth Nalgene type, are required. Narrow mouth bottles are not functional and should not be used. Other similar plastic bottles (e.g. Gatorade) can work also. Hydration packs are not recommended, once they freeze they stay frozen for the duration of the course.	☐ Buy ☐ Own
Water Bottle Parkas These are insulating jackets for your water bottles, one for each bottle. Must cover the entire bottle, including the lid.	☐ Buy ☐ Own

Climbing Equipment

Headlamp Bring extra batteries, or if it has a rechargeable battery, make sure and bring a charger. 200-350 Lumens is an ideal range.	☐ Buy ☐ Own
Climbing/Glacier Harness Make sure the harness has a belay loop and gear loops. When sizing make sure it can fit over your clothing layers when you have multiple layers on. A harness with leg loop buckles can make getting in and out of your harness with your skis or splitboard much easier.	☐ Buy ☐ Own

Carabiners Must be UIAA rated for climbing. - 4 large pear shaped munter-style locking carabiners. - 5 non-locking wire gate carabiners.	☐ Buy ☐ Own
Crampons Must be steel crampons with front points. Only modern strapon, step-in, or 'new matic' crampons are acceptable, as long as it fits and is compatible with your mountaineering, ski mountaineering or splitboard boot.	☐ Buy ☐ Own ☐ Rent
Prusiks 6mm nylon cord in 3 lengths; 13 ft, 6 ft, 5 ft. Available at AAI the morning of the course. We recommend getting 3 different colors for easy identification.	☐ Buy ☐ Own
Slings Bring one 120cm and one 60cm pre-sewn nylon sling. Slings must be UIAA rated for climbing.	☐ Buy ☐ Own
Ice Axe A straight shaft ice axe like the Petzl Glacier or Black Diamond Raven Pro is recommended. Adze is required. Please contact our Equipment Shop if you have any questions. Ice axe leashes are not required and not recommended.	☐ Buy ☐ Own ☐ Rent
Internal Frame Pack 60L or more. Mountaineering specific packs, instead of backpacking packs, are a good way to shave weight. Should also have the ability to carry weight well (45 lbs+).	☐ Buy ☐ Own ☐ Rent
Day Pack/Ski Pack 25L to 35L is an ideal size. Whatever you need to use for a full day out. For a Ski specific pack, your pack should fit well, move with you, and not be a major hindrance when downhill skiing. Choose a model with ice axe loops and straps to carry your skis easily. Some models feature additional avalanche features such as an "Avalung" or airbags.	☐ Buy ☐ Own

Camping

Food You are responsible for all food throughout the duration of your course! See the meal planning guide.	☐ Buy ☐ Own
Tent Lightweight 4-season tent capable of withstanding winds to about 40 mph and continuous, multi-day rain or snow. Your shelter should weigh no more than 4 lbs per person.	☐ Buy ☐ Own ☐ Rent
Sleeping Bag Synthetic or Down. If you bring a synthetic bag bring one on the lower end of the temperature range since synthetic bags tend not to be as warm as down. If choosing Down, water-resistant Down treatment is preferred to help prevent matting and loss of insulating ability if the sleeping bag gets wet. If you know you sleep cold take this into consideration when purchasing/selecting your bag. You may want to also consider purchasing and carrying a lightweight sleeping bag liner for additional warmth. <i>Rating: 10°F (23°C) to 0°F (18°C)</i>	☐ Buy ☐ Own ☐ Rent
Compression Stuff Sack For your sleeping bag. If it is a down bag, a waterproof compression sack is recommended.	☐ Buy ☐ Own
Sleeping Pad Bring 2. One should be a full -length inflatable pad. Your inflatable pad should be a modern, lightweight, and packable version with an R-Value of at least 4. Newer pads are less bulky and take up only a tiny portion of your packs' volume. The second pad should be a half or 3/4 length closed cell foam pad. Full length (72") is too long. Plain, inexpensive foam pads are less bulky than Ridgerests or Z Rests. If you already own a full length model it can easily be cut to 3/4 length.	☐ Buy ☐ Own ☐ Rent
Stove and Fuel Liquid fuel or canister stove. Fuel is available at our Equipment Shop the morning of the course. <i>NOTE: Many people choose to share stoves, fuel, and tents to decrease weight. However, some people prefer to camp in their own tents and use their own stoves. This can be determined on the morning of the first day of your program.</i>	☐ Buy ☐ Own ☐ Rent
Pots Bring 1 pot. <u>Early Season:</u> Bring a bigger pot for melting snow, 1.5L to 2L <u>Mid/Late Season:</u> 0.5L to 1L <i>NOTE: If you have a complete stove system like the Jetboil or MSR Reactor and plan on eating out of your integrated pot, then you do not need to bring another pot.</i>	☐ Buy ☐ Own ☐ Rent

Utensils Don't forget the official "most forgotten item" - The spoon or spork. Long-handled spoons make stirring hot liquids safer and metal ones tend not to break as easily in cold temps.	☐ Buy ☐ Own
Bowl <u>Early Season:</u> Bring a plastic bowl or mug, preferably with insulation <u>Mid/Late Season:</u> Bring a plastic bowl, insulation not necessary <i>NOTE: If you have a Jetboil or MSR Reactor type stove and plan on eating out of your integrated pot, then you don't need to bring a bowl. The same applies if you plan on using commercially packaged dehydrated or freeze-dried meals.</i>	☐ Buy ☐ Own
Lighters Bring 2, just in case.	☐ Buy ☐ Own
Water Purification Water purification of some form is required. The popular tabs that our guides use, Aquatabs, are available at the Equipment Shop the morning of the course. A water filter is highly recommended as well, as water tabs don't function in cold water . Steripens are an acceptable alternative to purification tablets. <i>NOTE: Pumps can be damaged by silt in the glacial water and can easily freeze at night and crack. However, many of our guides are finding success using some of the integrated pump/bladders like the BeFree and Quickdraw</i>	☐ 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
Alarm Clock You will be responsible for waking up at certain times throughout the program. Be sure if you use your phone as an alarm that you have enough backup battery to accommodate for this. If you plan to use a watch, be sure your alarm is loud enough to work for you.	☐ 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.	☐ Buy ☐ Own
Pee Cloth (Optional) A reusable, antimicrobial pee cloth, used in the place of toilet paper or wet wipes.	☐ Buy ☐ Own
Menstrual Cup (Optional) There are many things to consider about backcountry menstruation, click on the link for more information.	☐ Buy ☐ Own
Urination Device (Optional) Pee funnels such as the GoGirl or Freshette.	☐ 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.	☐ Buy ☐ Own
Lip Balm Make sure it is SPF Rated.	☐ Buy ☐ Own
Multi-tool Any multi-tool similar to a Leatherman is great. Make sure to bring any specialized tools that might be required to fix bindings or snowshoes in the field.	☐ Buy ☐ Own
Ski Straps Required for keeping your skis attached to you so that your skiing doesn't turn into a walking trip, this can be added to your repair kit.	☐ 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 - Inflatable sleeping pad patch kit - Duct tape (can be wrapped around trekking pole or water bottle. Gorilla Tape tends to be the best brand for the mountains). - Zip ties - 6-10ft of 3mm accessory cord - 2 trash bags that are big enough to line the inside of your pack with	☐ Buy ☐ Own
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Optional Items

Gaia Navigation App Optional smartphone app. Please have the Mt. Baker (all aspects) maps downloaded prior to the start of your course.	☐ Own
Map and Compass Map should be of Mt. Baker Area (Preferably Green Trails Maps #13SX). The compass must have a declination adjustment.	☐ Buy ☐ Own
Hand / Foot Warmers Recommended for people that are susceptible to cold hands and toes. These should be small, disposable type products.	☐ Buy ☐ Own
Foot Powder A very small bottle will allow you to treat your feet daily, keep them dryer, extend the life of your socks, and help you avoid blisters/rashes from chronic wet feet.	☐ Buy ☐ Own
Small Foam Pad Can be useful for sitting or kneeling during field instruction. Your pack can also serve this purpose.	☐ Buy ☐ Own
Altimeter Watch If you have one then bring it. It is a great tool to have in the backcountry, especially for navigation.	☐ Buy ☐ Own
Pee Bottle Used at night or when the weather is poor so you don't have to get out of your tent. A 32oz or larger capacity is strongly recommended. Many guides use a bladder instead of a bottle to increase capacity.	☐ Buy ☐ Own

Entertainment Books, games, cards, music player, kindle, etc. For evenings or rainy days in the tent.	☐ 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.	☐ Buy ☐ Own
Ear Plugs For defense against snoring and high winds.	☐ 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
Car Charger Consider bringing an extra battery pack as well, having a lot of people using car charger cables is difficult.	☐ Buy ☐ Own