

# Backcountry Skiing and Ski Mountaineering Equipment List

It is essential that you do a careful job in selecting and preparing your equipment for this course. Winter weather in the mountains is a major objective hazard and can present extreme challenges. Temperatures are typically in the twenties and thirties but can easily drop to -10 F to -20 F and can be accompanied by high winds and blowing snow. These conditions, in combination with the greatly varied activity levels inherent to skiing, can easily lead to problems of hypothermia or frostbite. For your own safety and that of the group, please take this equipment list seriously.

Our backcountry ski touring program is conducted in several locations (the Cascades of Washington & British Columbia, the Colorado Rockies, or in the Sierra Nevada). In all of these areas we will be spending most of our time in the backcountry. When equipping yourself for winter backcountry travel, you should pay equal attention to the need to have adequate protection from the elements as well as the necessity of traveling light. As a general rule, you should not bring more clothing than you can wear at one time. With the exception of extra socks and hand wear, avoid duplicate layers. Traveling light will greatly improve your experience.

Please take the time to carefully prepare and understand your equipment. If possible, it is best to use it in the field, perhaps on a shorter trip or inbounds skiing. Take the time to properly label and identify all items of personal gear. Many items that people bring are almost identical. Your name on a garment tag or a piece of colored tape on carabiners and miscellaneous items are easy ways to label your gear; fingernail polish is universally excellent. If using tape or colored markers, make sure your labeling method is durable and water-resistant.

At AAI we take equipment selection seriously. Our Equipment Services department is expertly staffed by climbers, skiers, and guides. Additionally, we only carry products in our store that have been thoroughly field-tested and approved by our guides. This intensive process ensures that all equipment that you purchase from AAI is best suited to your course and future mountain adventures. Please contact us at 360-671-1570 to select equipment for your course.

## **Clothing System**

**Base Layer Top:** This will be your base layer and should be "lightweight" or "silk weight" synthetic or wool. **NO cotton allowed.**

*Weight:* 5 - 8 oz / 140 - 225 grams *Materials:* Synthetic, wool.

Own Buy

**Base Layer Bottom:** Look for the same features as your Base Layer Top.

*Weight:* 5 - 8 oz / 140 - 225 grams *Materials:* Synthetic, wool.

Own Buy

**Undergarments:** Most skiers wear undergarments underneath their base layer.

*Materials:* Synthetic, wool

Own Buy

**2<sup>nd</sup> Layer Top:** A lightweight fleece or wind shirt. A chest pocket is a helpful feature of this multi-use layer.

*Weight:* 13 - 16oz / 368-454 grams

*Materials:* Nylon, powerstretch fleece, wind stopper, PL100/150

Own Buy

**Soft Shell Jacket:** A thin, light, stretchy, breathable but wind and snow-resistant layer that is comfortable to wear is ideal. This will be your 'action layer' and the outer layer that you spend the most time in. Hoods are optional but highly recommended. Size your jacket to be trim-fitting, but large enough to fit over your base and second layers.

*Weight:* 18 - 26 oz / 510 - 737 grams

*Materials:* Schoeller, Powerstretch, Powerdry, or similar

Own Buy

**Soft Shell Pants:** This will be your outermost layer most of the time for your legs. Look for the same features as your softshell jacket. A thigh pocket is a useful feature for storing small items.

*Weight:* 16 - 30oz / 450 - 850 grams

*Materials:* Schoeller, Powerstretch, Powerdry, or similar

Own Buy

**Shell Jacket:** This layer needs to be lightweight, waterproof, and breathable. Your shell should be sized to comfortably fit over your other base and mid-layers (minus your insulating layer). Choose the lightest, most packable shell that will still get the job done. You may be using your jacket every day (in warm, wet weather) or perhaps only during an occasional storm. Avoid extra pockets (one or two chest pockets is all you need), 3-layer Gore-Tex, and hanging linings. Your jacket should have a hood.

*Weight:* 8 - 20oz / 227 - 566 grams

*Materials:* eVent, Gore-tex, h2No, or similar

Own Buy

**Shell Pants:** Made of a waterproof/breathable material, your lightweight shell bottoms should have full or hip-length side zips. This garment should be extremely lightweight and packable. A zipper fly is a nice optional luxury.

*Weight:* 8 - 16oz / 227 - 453 grams

*Materials:* eVent, Gore-tex, h2No, or similar

Own Buy

**Light Insulating Top:** The goal for this piece is to add warmth to your internal layering system. Depending on your clothing system and the environment you are in, you may fit this layer underneath your shell gear (e.g. fleece sweaters) or over your shell gear (lightweight insulated jackets). If choosing fleece, pick modern fleece garments with waffle-grid patterns and avoid "windproof fleece" – it is not breathable enough. The weight and design of this piece will vary based on the other items of climbing that you are bringing.

*Weight:* 10 - 20oz / 283 – 566 grams

*Materials:* fleece, Primaloft, down

Own Buy

**Mid-weight Insulation Jacket:** Consisting of a baffled parka and optional hood, these come in many shapes, sizes, and temperature ratings. If you tend to get cold easily, opt for a slightly warmer and more substantial parka.

*Weight:* 20 - 40oz / 566 – 1133 grams

*Fill Materials:* Primaloft, down

*Shell Materials:* nylon, epic, eVent

Own Buy

**Fleece Gloves/Glove Liners:** You will wear these for much of your time on the trip. They need to be dexterous and comfortable, but not necessarily very insulating.

*Materials:* fleece, Powerstretch, or similar

Own Buy

**Mid-weight Fleece/Schoeller/Leather Gloves:** The most desirable glove is one that is comfortable and dexterous, so that it can be worn all day. It should feature leather palms to withstand ski edges, ice axes, and a bit of rope work. These come in different weights, so choose a medium thickness for your trip.

*Weight:* 4 – 8 oz / 110 – 200 grams

*Materials:* softshell, windstopper fleece, leather, or similar

Own Buy

**Shell Gloves:** A waterproof modular shell sized to fit over your liner gloves, these will be worn during any cold/stormy weather and need to be dexterous enough to manipulate ski poles, buckles, carabiners, harnesses, and tie knots. The highest priority with these gloves is to keep your hands and liner gloves dry.

*Weight:* 6 – 10 oz / 170 - 280 grams

*Shell Materials:* Gore-tex, Schoeller 3x, or similar

Own Buy

**Beanie Hat/Toque:** A thick warm hat is crucial for keeping warm.

*Weight:* 2 - 4oz / 56 – 112 grams

*Materials:* fleece, wool, windstopper, or similar

Own Buy

**Socks:** Bring two complete changes. Most skiers prefer to wear a very thin liner sock underneath a thicker sock. Adjust your sock system ahead of time to perfect your boot fit.

*Materials:* wool, synthetic

Own Buy

**Lightweight Balaclava:** A balaclava is a warm hat that can be pulled over the head to the shoulders. It completely covers the head except for an opening for the face. It should provide excellent wind protection for the chin, ears, and neck.

*Materials:* Powerstretch, fleece, polypro, windpro

Own Buy

**Buff:** "Buffs" are a multifunctional neck gaiter that can substitute for a lightweight balaclava.

Own Buy

### **Skiing & Avalanche Equipment**

We strongly encourage the use of randonee (alpine touring) equipment. If you are an experienced telemark skier, modern telemark gear will also be accepted. Splitboards are fine, but are difficult to ride with a heavy, multiday pack on.

**Ski/Snowboard Boots:** 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.

Own Buy

**Skis/Splitboard:** Skis with a backcountry flex (softer) are preferable to skis designed for hard packed lift serviced skiing. You may choose to bring telemark, alpine touring skis, or a splitboard. Telemark skis must be equipped with full metal edges. If you use a cable binding, bring a spare cable. Alpine touring skis should use bindings that allow for forward and lateral release.

Own Buy Rent

**Climbing Skins:** Make sure the glue is tacky and that the skins are the correct width and length for the skis/board you will be using. Size these to cover the entire base, minus the edges.

Own Buy Rent

**Ski Poles:** Adjustable trekking poles with a full size basket are recommended. Traditional ski poles will also work. Ski/Probe poles are not a substitute for the avalanche probe.

Own Buy Rent

**Ski 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 ABS. For day trips, a small pack (32L) is a good size, while 45L packs are better for long (multi-day) tours.

Own Buy

*Size Range: 32 - 45 liters / 1800 - 3000 cu in*

**Avalanche Transceiver:** Your beacon MUST be a modern, single frequency (457kHz) beacon. Three antenna beacons are preferred. 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.

Own Buy Rent

**Avalanche Probe:** 230cm minimum. Carbon fiber is lighter and suffers less deflection than aluminum models.

Own Buy Rent

**Shovel:** We require collapsible metal (aluminum) shovels with a blade surface of at least 3000 cubic centimeters. Newer models are lighter, stronger, and more ergonomic than older ones.

Own Buy Rent

**Ski Crampons:** Recommended for spring courses. These come in a variety of widths; be sure yours are wide enough to fit over your skis.

Own Buy

**Ski Runaway Straps/Ski Brakes:** Necessary for preventing runaway skis in the event that they come off. Telemark skis must be equipped with leashes.

Own Buy

**Ski Straps:** Bring two. These are helpful for lashing ski tips together when they are on your pack. These need to be long enough to strap around your ski boot in case a buckle breaks.

Own Buy

### **Other Essentials**

**Food:** You are responsible for planning your meals for the duration of this program. On this course you should plan on carrying all of your food for the duration of the trip. You should plan on eating breakfast before arriving at our office on the morning of the first day of your program.

Own Buy

**Personal Medical Kit:** For sunburn, blisters, cuts, scrapes, etc. Please include duct tape, moleskin, bandaids, blister care supplies (Compeed, Band-aid Activ-Flex), and prescriptions at a minimum.

Own Buy

**Sunscreen:** With a Sun Protection Factor (SPF) of at least 30. For the fair-skinned, the higher the SPF the better. Stick applicators allow you to apply without exposing fingers. Dermatone produces an effective 1" diameter stick as well as a translucent zinc oxide lotion. One 1 oz. tube is adequate. Several small containers are better than one large one.

Own Buy

**Lip Protection:** Bring 2 containers/applicators with the highest SPF available. Zinc oxide also works well (available in pharmacies) as do some models of "chapstick" that have SPF15 or higher.

Own Buy

**Sunglasses / Glacier Glasses:** Choose a model with 100% UVA/UVB protection and side shields. *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.

Own Buy

**Ski Goggles:** For use in high winds and heavy snow. These should be dark and block 100% of UV light. If you wear prescription glasses, these must fit comfortably over your glasses. Good venting is crucial.

Own Buy

**Hydration:** 2 liters of water capacity minimum. Two solid 32oz water bottles, like a one-quart Nalgene, are required. Hydration bladders are appropriate for spring, when daytime temps are above freezing; in winter, even insulated hoses will freeze.

Own Buy

**Water Bottle Parkas:** These insulating jackets are for your water bottles to help prevent freezing. Bring one for each bottle. Not required for spring courses.

Own Buy

**Repair Kit:** Your repair kit should include duct tape (can be wrapped on water bottles or ski poles), a pack waist buckle, "Glop Stopper" wax for your skins, and the appropriate spare binding and crampon parts (if applicable).

Own Buy

**Multitool:** Any multitool similar to a Leatherman is great, but keep weight and volume to a minimum.

Own Buy

**Headlamp:** High output LED models are preferred over older halogen models. Bring one set of extra batteries. Flashlights are not acceptable.

Own Buy

### **Climbing Equipment – Ski Mountaineering Courses Only**

**Climbing Harness:** For glacier skiing, choose the lightest harness with adjustable leg loops you can find. Make sure it fits your body when wearing bulky clothing.

*Weight: 6 - 16oz / 170 - 453 grams*

Own Buy Rent

**Carabiners:** Bring three large, pear-shaped (or MÜNTER) locking carabiners. Two wiregate non-locking carabiners are also required.

Own Buy

**Ice Axe:** A variety of axes are suitable, but strive to find a very lightweight model. Bring one that is 60 cm max; 50 cm to 55 cm preferred. Ice axe leashes are not recommended.

Own Buy Rent

**Crampons:** Aluminum crampons are highly recommended because they are much lighter to carry. Be sure your crampons fit your ski boots. Crampons with 'step-in' bindings are usually the easiest to put and off. Please seek advice when purchasing crampons and make sure they can be put on your ski boots.

Own Buy Rent

**Prusiks:** Prusiks are specially tied loops of 6mm cord used for crevasse rescue. If you don't have a set of prusiks from a previous AAI course, bring three lengths of 6 mm perlon/nylon: 13 feet, 6 feet, and 5 feet. Cord must be 6mm.

Own Buy

### **Camping Equipment – Overnight Tours Only**

**Tent:** A lightweight 4-season two-person tent is recommended. It should be able to withstand multi-day, continuous wind & snow. When deciding what tent to bring, it is worth trying to go as light as possible. Single wall models are lighter, but suffer from more condensation than heavier double wall models. Generally, your shelter should weigh no more than 3 lbs. per person. During the rendezvous, we will figure out the best way divide up tent weights and share gear.

*Weight: 3.5 – 5.5lbs / 1.6 – 2.5 kg*

Own Buy Rent

**Sleeping Bag:** Rated to 10-15°F for Cascades and Sierra Courses; -10°F for Colorado courses. Down is preferred since it is less weight and bulk, but more expensive and it requires more care to keep dry. To help keep your sleeping bag dry, bring an extra large garbage bag with which you can line your sleeping bag stuff sack and use for storage in the tent.

*Weight: 16 – 42 oz / 453 – 1200 grams*

*Materials: Down, Primaloft, Polarguard 3D*

Own Buy

**Compression Stuff Sack:** Used to shrink your sleeping bag into the smallest size possible.

*Weight: 2-4 oz / 56 – 110 grams*

*Materials: SilNylon, eVent, or similar*

Own Buy

**Sleeping Pad:** Bring one pad – preferably one lightweight inflatable pad and one closed cell foam pad.

*Weight: 8-20 oz / 225 – 565 grams*

Own Buy Rent

**Internal Frame Pack:** For overnight courses, substitute this pack for your ski pack. 55-65 Liters is ideal. Make sure it will hold all of your personal equipment with room to spare for your share of the group equipment that will be divided during your course.

*Weight: 3.0 - 6.5lbs / 1.6 – 2.9 kg*

Own Buy Rent

**Stove:** Liquid fuel or canister stoves are acceptable. Canister stoves take longer to melt snow and cook in cold temperatures. We'll likely pair up on stoves to save weight. If you don't already own a stove please contact the AAI office to find out if you'll need to buy or rent a stove.

Own Buy Rent

**Fuel:** White gas or gas canister. Fuel is available at the rendezvous for your course.

Own Buy

**Fuel Bottle:** For use with liquid fuel stoves. Leak-proof bottles designed for your specific stove such as Sigg or MSR are best.

Own Buy Rent

**Pots:** One 1½ - 2 quart pot is enough for one person. Two people sharing a stove might want to bring two pots if their meals are significantly different.

*Materials: Titanium, aluminum*

Own Buy

### **Eating Utensils:**

Spoon: Bigger is better. Lexan is lighter, but metals spoons are more durable.

Thermal mug: 16-20oz with a lid. A 16oz wide mouth Nalgene is a favorite amongst our guides.

Bowl: A lightweight Tupperware-type bowl is recommended. The new, ultra-light folding plastic contraptions are excellent. Avoid metal bowls, they are expensive, and make your food get cold very fast (or burn your hands when you are eating soup).

Own Buy

**Lighter:** Bring two. Be advised, lighters are no longer acceptable in checked baggage when flying.

Own Buy

**Personal Toiletries:** Bring a toothbrush, toothpaste, floss, hand sanitizer, etc. Bring no more than one roll of toilet paper.

Own Buy

### **Optional Equipment**

The items listed below are not required, although many are nice “luxury” items that can make your tour more enjoyable.

**Camera:** We recommend small point-and-shoot cameras that can easily be carried in an outside pocket or small case outside your pack. If you can’t comfortably and safely carry your camera outside your pack, even in bad weather, you’ll miss the best photo opportunities.

Own Buy

**Note:** *No battery powered, auto-focus cameras perform well in the cold. Protecting the camera in a warm pocket will make the batteries last much longer.*

**Entertainment:** Music players like mini-disc and MP3 players are popular because the device and media are small and relatively lightweight.

Own Buy

**Hand/Foot Warmers:** Recommended for people that are susceptible to cold hands and toes. These should be small, disposable type products like the ones made by “Grabber Mycoal”.

Own Buy

**Foot Powder:** For overnight trips only. 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 chronically wet feet.

Own Buy

*Weight:* 1 - 2oz / 28 – 56 grams

*Examples:* Gold Bond, Dr. Scholls

**Ear Plugs:** Nice to have for windy nights and snoring tentmates.

Own Buy

**Gaiters** – Depending on the fit of your pants to the boot, gaiters may be necessary to keep snow out.

*Weight:* 4 – 12 oz / 110 – 340 grams

*Materials:* Schoeller, nylon, Cordura

Own Buy Rent