

# Glacier Skills Equipment List

This equipment list has been developed specifically for the conditions you will experience in the Cascade Mountains during the summer mountaineering season. The equipment you bring must function well in a wide variety of conditions. While each piece of gear you bring is crucial to your success and safety, what you leave out of your pack can benefit you in similar ways by lightening your load, allowing you to move quickly and efficiently over alpine terrain. Our aim is to have you bring only the essential gear for your mountain adventures. Please understand that weather varies throughout the season and that this list is designed to outfit you for severe conditions you may not actually experience during your course. The vast majority of the items you bring should fit inside your backpack while still allowing for some space for group items such as ropes and climbing hardware.

Temperatures and weather conditions in the summer Cascades often change from minute to minute. A common weather prediction states, "If you can't see the mountains it's raining, and if you can see them it's going to rain." When the sun comes out, it's glorious, and occasionally quite hot. Rain can fall at any time of year, and it is possible to get snow down below timberline before the beginning of July and after about mid-September. Nighttime low temperatures often drop to slightly below freezing while daytime highs range anywhere from 35°F to 70°F. Mountain breezes are not uncommon and should be taken into consideration when planning your clothing system.

Please take the time to carefully prepare and understand your equipment. If possible, it is best to use it in the field beforehand, perhaps on a backpacking trip or training hike. Take the time to properly label and identify all items of personal gear. Many items that climbers bring are almost identical. Your name on a garment tag or a piece of colored electrical 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.

On this course we normally spend the first day carrying all our equipment up to a base camp on Mount Baker. Here we practice snow climbing skills, glacier travel, and crevasse rescue on the phenomenal Coleman Glacier. This course does not include a summit climb. To save weight on tents and stoves, course participants normally pair up at the rendezvous at the start of the course. Travel clothes and various odds and ends that you won't need during your course can be left in the AAI office. Most people will store their travel luggage at the office with a lock.

When preparing your equipment for travel to the Cascades, please remember that lighters and stove fuel are not allowed on aircraft. Stoves that have been thoroughly cleaned can be put in your checked baggage. Protect your equipment by covering your ice axe, crampons, and trekking poles with cardboard or other protection to prevent puncturing or tearing less durable equipment.

At AAI we take equipment and its selection seriously. Our Equipment Services department is well stocked and its seasoned staff can help guide you through this complex undertaking. Please contact us to select equipment for your course.

***Equipment items that are available for rental are designated with an (R). Please contact the Equipment Shop at 360-671-1570 for assistance in selecting equipment for your course.***

## Clothing & Footwear

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

- Weight: 5 - 8 oz / 140 - 225 grams
- Materials: Synthetic, wool.
- Example: Patagonia Capilene 2

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

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

**Undergarments:** Most climbers wear them underneath their base layer. 1-2 pairs depending on personal preference for changing.

- Materials: Synthetic, wool

**2nd 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, fleece, wind stopper
- Examples: Patagonia Houdini, Outdoor Research Marvel, Patagonia R1

**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. Light to moderate insulation/thickness is recommended. This layer will go over your base and insulation layers, but under your shell and parka.

- Weight: 18 - 26 oz / 510 - 737 grams
- Materials: Schoeller, Powerstretch, Powerdry, or similar
- Examples: Arc'teryx Gamma MX, Patagonia Figure 4 and Ready Mix, Patagonia Core Skin, OR Mithral

**Soft Shell Pants:** Look for the same features as your soft shell jacket. This will be your outermost layer most of the time for your legs. A thigh pocket is a useful feature for storing small items. Your base layers need to fit under these pants comfortably.

- Weight: 16 - 30oz / 450 - 850 grams
- Materials: Schoeller, Powershield, Powerdry, or similar
- Examples: Patagonia Guide pants, Black Diamond Alpine Pants, Arc'teryx Gamma LT Pants, Mammut Champ

**Light Insulating Layer, Top:** The goal for this piece is to add warmth to your layering system. Depending on your clothing system, 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 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: Primaloft, down, fleece

- Examples: Patagonia Puff Jacket or Micro Puff pullover, Patagonia R3 or R4, Montbell Thermawrap, Wild Things Primalight and EP jackets.

**Shell Jacket:** Choose the lightest, most packable, waterproof shell that will still get the job done. Avoid extra pockets (one or two chest pockets is perfect), 3-layer Gore-Tex, and hanging linings. Your hood should fit over your climbing helmet. It should be sized to comfortably fit over your base and mid-layers (minus your insulating layer).

- Weight: 8 - 20oz / 227 – 566 grams
- Materials: eVent, Gore-tex, h2No, or similar
- Examples: Rab Latok Alpine, Patagonia Jetstream, Marmot Precip

**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

**Mid-weight Insulation Jacket:** A warm puffy jacket with an optional hood. These come in many shapes, sizes and temperature ratings and are often called “belay jackets.” 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
- Examples: Patagonia DAS Parka, Montbell Flatiron Parka

**Fleece Gloves/Glove Liners:** You wear these for much of your time on the mountain. They need to be dexterous and comfortable, but not necessarily very insulating. Bring two pairs in case one pair gets wet.

- Materials: fleece, Powerstretch, or similar

**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 be durable enough (leather palms) to handle ropes, ice axes, and a bit of rock scrambling. Choose a mid-weight model.

- Weight: 4 – 8 oz / 110 – 200 grams
- Materials: softshell, windstopper fleece, leather or similar

**Shell Gloves:** A waterproof 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 carabiners, harnesses, and tie knots. The highest priority with these gloves is to keep your hands and liner gloves dry. Bring two pairs if you have them. Some will choose to bring a different heavier glove for this layer. Mittens should be avoided.

- Weight: 6 – 10 oz / 170 - 280 grams
- Shell Materials: Gore-tex, Schoeller 3x, or similar
- Examples: OR Arete, Black Diamond Guide

**Beanie Hat/Toque:** A thinner warm hat that will fit under your climbing helmet and over your balaclava.

- Weight: 2 – 4oz / 56 – 112 grams

- Materials: fleece, wool, windstopper, or similar

**Sun hat:** A baseball cap or visor serves well. Models with a “tail” are recommended for increased sun protection.

**Socks:** Bring two complete changes. Many climbers prefer to wear a very thin liner sock underneath a thicker hiking/mountaineering sock. Adjust your sock system ahead of time to perfect your boot fit. No cotton.

Materials: wool, synthetic

**Gaiters:** (R) Half/knee height is recommended, though ankle high gaiters can be used later in the season. Check the fit of the gaiter to your boot in advance.

- Weight: 4 – 12 oz / 110 – 340 grams
- Materials: Schoeller, nylon, Cordura

**Mountaineering Boots for snow and ice:** (R) Plastic boots are STRONGLY encouraged for courses prior to July 1, when the snowpack is still wet and deep. Single (leather/synthetic) mountaineering boots are suitable the rest of the season. The latter should be designed for use with step-in crampons. These should be broken in and thoroughly waterproofed.

- Examples: La Sportiva Nepal, Kayland Apex XT, Scarpa Cumbre

NOTE: There are many of makes and models out there and not all are created equal. Please consult with our Equipment Shop if you are uncertain about the acceptability of your chosen model.

## Climbing Equipment

**Climbing Harness:** (R) For alpine climbing, choose a harness with adjustable leg loops. Make sure it fits your body when wearing bulky clothing.

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

**Climbing Helmet:** (R) Lightweight, well ventilated, and comfortable. Models with a plastic shell are more durable, but are heavier than all-foam models. Must be UIAA approved for climbing.

- Examples: Petzl Elios, Black Diamond Half Dome

**Carabiners:** Bring five total. Two must be large, pear shaped (or Münter) locking carabiners. Wiregate non-locking carabiners work well for the remaining three.

**Ice Axe:** (R) A variety of axes are suitable. Your axe should hang down to between your mid-calf and ankle.

**Steel Crampons:** (R) Flexible or semi-flexible. New-matic crampons are the easiest to put on with cold fingers. Only modern strap on, step-in, or ‘new-matic’ crampons are acceptable. Older Scottish style strap-on crampons are not adequate.

- Examples: Petzl Irvis, Grivel G12, Black Diamond Sabertooth or Contact Strap

**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 6mm perlon/nylon: 13 feet, 6 feet, and 5 feet. (Precut sets are available for sale at AAI.)

**Trekking Poles:** (R) At least one is required and two are recommended. Even if you don't normally use trekking poles, at least one is necessary to help with balance while carrying heavy packs on mountainous terrain and crossing streams.

## Camping Equipment

**Tent:** (R) A lightweight 4-season two-person tent is recommended. It should be able to withstand multi-day, continuous rain. 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.

- Weight: 3.5 – 5.5lbs / 1.6 – 2.5 kg

**Sleeping Bag:** (R) Rated to around 25°F from late June to mid September. Bring a 15° to 20° for early and late season trips. Down 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
- **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

**Sleeping Pad:** (R) You will be camping on either snow and dirt during this course. Bringing two pads is recommended-- preferably a lightweight inflatable pad and a closed cell foam pad. If bringing only one pad, look for one with an insulating "R-value" of approximately 4. Please bring a patch kit for inflatable pads.

- Weight: 8-20 oz / 225 – 565 grams
- Example: Thermarest Prolite 4

**Internal Frame Pack:** (R) 65-85 Liters is ideal. In early season, larger pack (up to 85L) may be brought so that more clothing can be carried. It should be comfortable for carrying loads up to 50lbs. 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

**Stove:** (R) Liquid fuel or canister stoves are acceptable. We'll likely pair up on stoves at the Rendezvous to save weight.

- Examples: MSR Whisperlite, Jetboil, MSR Reactor

**Fuel:** White gas or gas canister. 22oz of white gas or two 8oz canisters are usually sufficient. Fuel is available to purchase at the rendezvous for your course.

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

**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

**Eating Utensils:**

- Spoon: Bigger is better. Lexan is lighter, but metals spoons are more durable.
- Thermal mug: 16-20oz with a lid. Optional.
- 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).

**Lighter:** Bring two. Lighters are no longer acceptable in checked baggage when flying.

**Hydration:** One solid 32oz water bottle, like a one-quart Nalgene, is required. Hydration bladders with appropriate accessories are recommended. 3 liters of water capacity minimum.

**Water Purification:** Bring tablets or liquid purification. Filters are overly heavy and should not be used.

- Examples: Aqua Mira, Potable Aqua

**Food:** You are responsible for planning your meals for the duration of this program. We have included meal planning guidelines in your registration packet. Please call our office for additional guidance in the food planning and packing process.

**Personal Medical Kit:** Please include duct tape, moleskin, bandaids, blister care supplies, and prescriptions at a minimum. Painkillers such as ibuprofen are recommended.

**Personal Toiletries:** Bring a toothbrush, toothpaste, floss, etc. Bring half a roll of toilet paper or less. Travel sized containers are excellent.

**Hand Sanitizer:** Any alcohol based product for hand sanitizing work well. Bring a travel-sized bottle.

**Sunscreen:** With a Sun Protection Factor (SPF) of at least 30. For the fair-skinned, the higher the SPF the better. One 1 oz. tube is adequate.

**Lip Protection:** Bring 2 containers/applicators with the highest SPF available. Some models of "chapstick" have SPF15 or higher.

**Glacier Glasses:** Choose a model with 100% UVA/UVB protection and side shields. If you have an extra pair, bring them too. Those using contact lenses should bring a pair of prescription glasses if available.

**Garbage Bags:** Bring two or three large ones to line your backpack and to pack out garbage. Trash compactor bag, if available, are more durable.

**Headlamp:** High output LED models are preferred over older halogen models. Bring one set of extra batteries. Flashlights are not acceptable.  
Examples: Petzl Tikka XP, Black Diamond Spot

**Repair Kit:** At a minimum this kit should include a stove repair kit for your stove, Thermarest repair kit (for Thermarest pad users), 10 to 20 feet of lightweight nylon cord, small sewing kit, duct tape (wrapped on water bottles or trekking poles), and a pack waist buckle.

**Multitool:** Bring one if you have one. Any multitool similar to a Leatherman is great. One can be shared amongst tent-mates.

## Optional Equipment

The items listed below are not required, although many are nice “luxury” items that can make your course more enjoyable. Remember that a few ounces here and there add up to extra pounds on your back and knees during your course.

**Handiwipes:** The mountain shower. For personal hygiene and general use.

**Pee Bottle:** A nice luxury for those cold nights. 1-quart size minimum. A collapsible 2L Nalgene is recommended. If you choose to bring one of these, use it carefully and make sure the capacity is adequate. Label your pee bottle well. Women should also bring a pee funnel; Freshette makes a tried and true model.

**Bandana:** A cotton bandana has many uses on the mountain.

**Entertainment:** Books, cards, are great for evenings or stormy days in the tent. iPods are popular.

**Ear Plugs:** Defense against snoring and high winds in the area.

**Camera:** We recommend a small point-and-shoot camera 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. Though some climbers bring them, SLR cameras are not recommended because of weight and bulk. If bringing a digital camera, consider your battery needs.

**T-shirt:** Light colors are best. This shirt can be synthetic or cotton. If you plan to hike in it, synthetic is better. A cotton shirt can be a nice break from the synthetics in camp.

- Weight: 3 - 7 oz / 85 – 200 grams
- Materials: Synthetic, cotton, blends

**Shorts:** Lightweight shorts can be nice hiking into camp on hot days.

- Weight: 4 - 8oz / 110 - 227 grams
- Materials: Nylon

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

**Approach Shoes:** Bring a pair of tennis shoes or “approach shoes” for wearing around camp. These are most useful from late June to September.

**Post-Climbing Clothing:** A clean set of clothing is an excellent item to leave in the vehicle to change into upon your return.